

# THE LITERARY GAZETTE

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### REVIEWS OF NEW BOOKS.

SHARON TURNER'S SACRED HISTORY.

*The Sacred History of the World, attempted to be philosophically considered, in a Series of Letters to a Son.* By Sharon Turner, F.S.A., &c. 3 vols. 8th Edition. Longman, Brown, Green, and Longmans.

Is the advertisement prefixed to this edition of one of the most sterling and standard works in English literature, the Rev. Mr. Sydney Turner, the distinguished Chaplain of the Philanthropic Society, and the worthy inheritor of his father's talents and virtues, informs us that the last corrections and additions of the author have been inserted from his posthumous notes and memoranda, and the whole contents carefully revised and edited according to his last wishes and directions. This imparts a greater and a final value to the publication; and whilst we acknowledge the improvement, it is still further gratifying to state that a "somewhat smaller and cheaper form" has been "adopted, in obedience to Mr. Turner's earnestly expressed desire that it might, if possible, be so reduced in price as to be brought within more general reach, and thus be more extensively useful."

The diligence exercised by Mr. Sydney Turner shows what a labour of love he has considered this production to be. We can bear witness to many hundred emendations, apparent by a careful revision of every page, and an index, of which the utility seems to contribute all that was wanting for the "completeness of preceding editions."

To speak of the character of a History so universally read and so highly established in public opinion, would be an irrelevant waste of time; and it is our duty only, in reference to its merits, to offer a few words on a few of the passages we discover to be new, on comparison with the earlier issues. We merely allude to a notice of the planet Neptune, p. 54, vol. 1. for the sake of adding a note which has just appeared in the Paris newspaper, the *National*, in its report of the proceedings of the Academy of Sciences on the 29th ult.\* In that portion of his work in which the author describes the death-beds of eminent persons, we find the following instance of suspended animation, which, says Mr. Sharon Turner, occurred "in the life of an English officer serving in the Continental wars of 1758-9, and communicated to me by the kindness of the Rev. J. O. W. Haweis, grandson of the gentleman whose unlooked for restoration to life it relates to, appears to bear so much upon the views expressed by the author in the text, that I have requested Mr. Haweis's permission to insert the narrative with which he has favoured me:—

"Alexander McDowall entered the army during its operations on the Continent in 1759. In one of the actions then fought he received seven musket-balls, one entering the side of his forehead. He fell, and remained all day upon the field of battle. His body was found stripped of his regimentals, and showing no evidence of life. The medical officer, however, would not have him buried until he had placed a blister on his head, and given it twelve

\* "That planet, how shall we express ourselves?—that wonderful planet, discovered in the height of the skies, &c. Well! that planet does not exist. What! will you say there is not in the skies a planet called Neptune? That name was not seen on the 23rd of September, 1846, near the star Delta of the Capricorn, by a German observer, named Galle, who was decorated for having made the discovery? Since that epoch the new planet has not been again seen by astronomers, who have observed its revolution and measured all its movements? Have astronomers then told a falsehood? No. Neptune exists, but it is not the planet announced by M. Leverrier." The truth of this assertion was admitted by M. Leverrier himself.

Enlarged 141.]

hours to rise. This blister was removed at the expiration of the time, and an attendant observed that it had not risen. The doctor still doubted, had it replaced, and before the expiration of another twelve hours my grandfather revived. During the whole of this period he always asserted that he retained his consciousness, though unable to give the slightest sign, and expecting to be buried every hour. He married immediately on his recovery, about 1763. He died in Jamaica, from the opening of his old wounds, about 1780, aged forty-two."

"It will at once strike the reader how remarkably this incident illustrates Sir Charles Bell's discovery of the twofold nature of our nervous system. The sufferer had been so wounded that a leading trunk of the nerves, communicating and enabling motion, had been paralysed, while the nerves of sensation, giving consciousness of pain and suffering, and of the interference of the doctor and other external agents, still continued."

"But the case is very valuable as also illustrating the independent existence and action of the reasoning and thinking faculties as distinct from the powers and agencies of the material frame. One half the nervous functions which the animating principle within us usually sets in action, were here arrested and suspended; and yet the whole process of memory, thought, judgment, and anticipation continued unimpaired, maintaining the consciousness of complete identity throughout."

The fifth and sixth letters in the first volume appeared in the immediately preceding edition, but we are not aware that they attracted the commendation they deserved. Still more worthy of attention, as bearing remarkably on the difficulties attendant upon our increased and increasing population, and the necessity of improved social machinery, to meet the exigencies of the case, will the observations towards the close of the third volume be found. We quote an example of the reasoning:—

"The institution and laws of property; the right of all to possess in security what they produce, and to use it as they may choose, may be deemed essential to the production of it. Mankind will not willingly raise what they cannot retain or enjoy. But the upheld right of property makes it as essential to every one to have some occupation connected with the fabrication of the various necessities and conveniences of his fellows, by which he may both contribute his portion of the supply to them for their use and for his own, and by this to obtain from them the share he needs of what they originate and are holding."

"The arts and trades and employments of civilized life furnish continual avenues and means to every population, for the accomplishment of these ends."

"But it is found in every community, as it multiplies, that a great many are always arising in all classes and stations, who cannot get into any of the existing channels or occupations, by which they can obtain what they need. There is no demand in their neighbourhood for their additional industry, in the state of things into which they have grown up. The places are all filled by those who were born before them, and no vacancies occur while their wants are pressing upon them."

"This is everywhere inevitable. The younger must wait until the older die off, or must devise or find out for themselves some new subjects for their labour, which will be sufficiently useful or pleasing to the existing society, for that to receive in exchange for a participation of what they are possessing. They buy what the others make when they want or wish it; and when this takes place, the natural supplies

of Providence are distributed as they are wanted, by the desiring or additional individuals."

"But this universal position of human things makes it essential to the comfort of every community, that there should be labour and employment, and means of acquiring subsistence, always ready for those who are willing to work for it; but who cannot, from their own resources or connexions, find out or devise for themselves any path or channel, or means by which they can earn what they must obtain, or starve from the absence of it."

"Here the assistance of a foreseeing legislation and of some administrative branch of governmental or parochial superintendence appears necessary. Every parish or appointed district ought to have some work, some operations of labour ready for those to resort to, and earn their needed subsistence by, who cannot elsewhere get employment for themselves."

"I grant that this is easily stated and recommended. But the difficulty will always be to discover or invent those objects or departments of labour, by which society will be benefited, and the labourer supplied with the means of a frugal yet sufficient subsistence. This is a large subject, involving many considerations, but certainly capable of a judicious and satisfactory arrangement; because every new person wants as much of all things as he can make, if he had to make every necessary for himself, and would therefore so employ himself, and be so supported, if he were free and able to do so. If his wants take from the general store what they require, his personal labour replaces or supplies what is thus abstracted. Nature yielding, and all men working—more men working and producing more, as more men come into existence, and require their food and necessities—seem to be two coincidences, which put and keep the want and the supply always upon a balance, in the actual reality. The arrangement or adjustment required, is the direction of the new human labour to the new or additional production which the new comer needs, and by his industry can make or occasion, if it be employed to do so. To have any portion of the population without the work they can do, and by which they could repay to the community the full amount in substance or value of the necessities they require, is the anomaly and the evil, which will be a constant demand upon our sagacity to remove, and a reproach upon it for imperfection or indolence, if it be not efficaciously exerted. In science and manufactures, and often in war, and not less so in commerce, no difficulty is long left unassailed or unconquered. The mind is stimulated to new inventions adequate to the necessity, and usually devises the means, and instrumentalities, and contrivances, and exertions which accomplish what it assiduously directs itself to obtain."

With this very brief illustration we shall content ourselves, as the words—"eighth edition" might excuse any extract from so widely and well known a work; but we are tempted by one of the editor's notes to follow up by example the cause we pleaded in last *Gazette*—viz., the making a provision for the employment of youthful paupers and criminals; and by setting the system of Bridgnorth before the eyes of the humane, prore, perhaps, its extension, and the consequent disappearance of much distress and remedy of much vice. Mr. S. Turner states—

"A very interesting experiment has been made during the last two or three years as to the profitable employment of boys in farm and garden labour, in the Union of Bridgnorth, Salop. Mr. Wolryche Whitmore (of Dudmaston), a gentleman distinguished by his intelligence and skill as a scientific agriculturist,

induced the guardians of that Union to separate the children in the Union-House from the older paupers, and to hire a house, with four or five acres of land for their accommodation and employment. Without any other assistance than that of the master, the boys, who are all under fourteen years of age, and of whom there are only about fifteen or sixteen equal to any effective labour, have raised from their little fields and gardens, crops of turnips, potatoes, mangold-wurzel, cabbages, rye, vetches, &c., which have realized a clear annual profit to the establishment, after the payment of all expenses connected with the cultivation of the land, purchase of fresh stock, seed, &c., of upwards of seventy pounds. The cultivation of the land is entirely carried on by *spade-husbandry*. The success which has attended the experiment is chiefly attributable to the abundance of labour and of manure which the managers have at their command—the latter is applied mostly in a liquid state, and is amply supplied, without expense, by the drainage and sewerage of the school being conducted into one large cess-pool. As a remedy for that hereditary pauperism, which the workhouse system in its common shape engenders, this separation of the children from the adults is in itself a great advantage. But the chief use of the experiment may be said to be the proof which it affords of how readily those more useful classes of the community which are now only a source of expense, could be taught to contribute towards their own maintenance, and thus be made useful to society and to themselves, if only a really practical education, leading them to self-support and self-control, were given to them, instead of the merely intellectual instruction now too generally thought sufficient. Were the boys in all our workhouses, and it may be added in all our prisons, thus trained to industrial habits, and instructed in agriculture or other useful arts, it would be difficult to estimate the beneficial results, especially if the means and the encouragement to emigrate were also afforded.

To this we may add, and we do so joyfully, the Philanthropic Farm plan is now carrying out. An agreement has been made for 130 acres of land in the north of Middlesex, and the experiment of what can be done in this way for a part of the criminal population will be fairly tried in the course of next summer.\*

And now we cannot take our farewell to the memory of an old and much esteemed friend without a personal reference to the close of his useful and honoured life. The subjoined notes by himself and his son occur in the second volume.

"On the last period of human life my own experience is, in the 67th year of my age, that, notwithstanding ailments, infirmities, and the privations which they occasion, it is just as happy as all the preceding seasons were, though in a different way. So happy, as to cause no regret that they have passed, and no desire to exchange what is for what has been. If youth has hopes, and prospects, and wishes that enchant it, age has no inferiority even in this respect. [In reprinting this new edition in my 73rd year, I may add that the six further years of age which have accrued to me since the above note was written, have not caused any diminution of comfort to take place, except in bodily weakness, which yet is without pain. I feel, that using due care and caution, and adapting all my habits to the state and peculiarities of my health and increased years, I am

\* Since writing this, we observe in the daily press—"At the quarterly meeting of the Philanthropic Society, the donation of 100l. was received from her Majesty and Prince Albert, as an earnest of their patronage to the Farm School; and that the chaplain stated also, that nineteen of the elder lads in the school in St. George's Fields had gone out as voluntary emigrants to Western Australia, careful arrangements having been made to secure them protection and employment, and that his list of candidates for the same advantage already contained nearly twenty names, the boys and their friends thankfully accepting the society's offer to grant them, after such a probation as shall show them to be really trustworthy and of good character, a free passage and outfit to the colonies. It was mentioned that eighty-five lads had been received from different prisons and police-courts since the 1st of January, and that upwards of seventy had been provided with situations or been placed under the care of friends."

as happy and with as much good spirits, and in mind as efficient as I was 50 years ago. I am not sensible of a difference in these respects, and therefore infer, that old age is not naturally, nor necessarily, unhappy.]

"It was the privilege of the author to be enabled to feel and to express the same cheerful contentment to the very end of life. Though for the last year or two preceding his death he suffered acutely from the effects of extreme bodily exhaustion, and at times was wholly unequal to the least physical exertion, the happy equability of his temper was never disturbed; he took the same bright and animating views of the endowments, powers, purposes, and possible improvements of human nature, allowing no complaint to escape him, and taking every opportunity to point out the personal compensations, as he expressed it, which he enjoyed even under the pressure of pain and suffering. In one of the last conversations which he had with the editor, he enlarged with more than his usual earnestness on the blessing and privileges which he had found and still felt life, in itself, to be; and referred to his own weakened and physically helpless state as a proof how happy even mere existence might be made, if only it were rightly and innocently used.—Editor."

#### THEORY OF HANDS.

*The Hand Phrenologically Considered.* Pp. 78. Chapman & Hall.

We recently handled the Nose as the basis of a theory (the book on Nasology, *Literary Gazette*, No. 1638), and now we are called on to consider what another writer knows of the hand. He has made, or tried to make, more of it than we were aware of. We were sensible that the liberally open hand could hit one a tingling slap; that the doubled fist could knock you down; as a worthy M.P. has explained, it could give you a tremendous "punch," say in the bread-basket; that bishops stretched out a hand when they blessed, and laid it on your head when they confirmed you; that Gipsies or other fortune-tellers, on having their own crossed with silver, at the least, could by scanning yours tell you something you would like to know; that criminals at the bar used to be called on to hold up their hands when they could not hold up their heads, and witnesses against them take the book into their hands; that shaking hands was a token of friendship, and a very shaky business when friends were needed; that hands were joined in holy wedlock, which never very cordially joined again after the honeymoon was over; that documents were often signed under hand and seal, which that hand had better have been sealed than subscribed; and that going hand over head was an exceedingly bad and dangerous plan in this world of handy fellows, who are ever ready to take advantage of you when in such a position.

Our author, however, touches upon none of these matters; he does not lay a finger upon any of them. He puts his hand far back to the date of John Indagine, who published his *Art of Chiromancy* in 1563; and tells us, that during the nearly three hundred years that have since elapsed, little progress has been made in the study of the hand as an indication of the physical and mental peculiarities of the individual. Surely it was time that somebody should set their hand to the task, and give the wheel a handsome turn. Accordingly, a certain Dr. Arpentigny, in France, and a certain Dr. Carus, in Saxony, have taken the hand in hand, just like our London fire-insurance offices, and the English writer has stepped in to complete the Science. He lays it down as a law, that, "from the external configuration of the body, or of some of its parts, we can legitimately draw conclusions respecting the degree and kind of mental power." And goes on to assert, that handsome persons are the caskets for superior intellect, and *vice versa*. Socrates, Æsop, Scarron, and ten thousand other famous men, dead and living, contradict this theory, and prove that the harmonious combinations of form and intelligence are not a constant rule, nor a rule at all, in the felicitous compliments of mankind. Then he insists on physiognomy, which being

produced by dispositions and passions, does not seem to advance the argument. Neither, to us, does the next demonstrative topic—viz., the correspondence between the forms and habits of animals, which are simply necessities of their existence in the circumstances under which they live. He cites Paley,\* as observing that—

"In the swan, the web foot, the spoon bill, the long neck, the thick down, the graminivorous stomach, have all a relation to one another, inasmuch as they all concur in one design, that of supplying the occasions of an aquatic fowl, floating upon the surface of shallow parts of water, and seeking its food at the bottom. Begin with any one of these peculiarities of structure, and observe how the rest follow it. The web foot qualifies the bird for swimming, the spoon bill enables it to graze."

Much in the same mode of demonstrating, a friend of ours, says "A duck is a scavenger; his bill is a shovel, and his body a dung cart." Wonderful adaptation!! And even so reasons our author—

"The general habit of body, and the kind of temperament, we determine from certain general signs deduced from the hand. We observe the structure of the skin—whether it be fine or coarse in its texture, whether it be hard and unyielding, or soft and elastic. We note the quantity of fat and of cellular tissue; and this enables us to form a judgment respecting the degree of *embonpoint*, and we have already abundantly proved that a man of a soft, lax habit, with an abundance of cellular and fatty tissues, differs in mental tendency and disposition from one of firm, tense fibre, in whom the bones, muscles, and articulations are strong and prominent. Thus a soft, thick hand, loaded with fat, denotes little energy of character, and a soft, yielding, inactive disposition; while, on the contrary, a thin, firm, bony, or muscular hand indicates a rough, active, energetic nature. With respect to the texture of the skin—a hand possessing a delicate and highly-sensitive skin is accompanied by a similar structure of the tegumentary envelope of the entire body, and is always associated with an excitable organization, with a highly sensitive, mobile disposition. A coarse, dry texture of the skin denotes a preponderance of muscular force over sensibility, and a character more remarkable for solidity and resolution than for imagination or vivacity of conception. The hand partakes of the nature of the whole body; when the latter is gracefully and symmetrically formed, with its several parts in nice adaptation and co-ordination, the former shares its perfection and is constructed after the same general plan; and we accordingly find that a powerful, athletic individual is furnished with a large hard hand, with its joints or articulations strong and prominent, and a delicate, sensitive person, with a small, narrow hand, with its joints small and but slightly prominent."

This is the hypothesis. Ladies and gentlemen look to your hands. And we are farther told, in rather curious language, when treating of "The Hand," that—

"On the one hand, it is the most delicate instrument of feeling—the organ of touch, by means of which we judge of so many properties of bodies; on the other hand, the finest and most skilful instrument of motion and of prehension; and it may likewise be regarded as the organ of art."

We might fancy the individual had as many hands as Briareus or Brannan when spoken of in this style; but we must yield the palm, and be content to address a slight notice to an adjunct:

"The ball of the thumb (we are informed) is made up of strong muscles, and in it the motor function of the hand is, as it were, concentrated. It is the most *Veneris* of the old chiroscopists; the expression of 'la volonté raisonnée,' of decision, perception, and the logical faculty, according to D'Arpentigny, who confirms the old opinion above alluded to, remarking,

\* A correspondent in the *Athenæum* has written a staggering letter, and supported it by parallel passages, to prove that Paley, instead of being very original, has borrowed largely from Nieuwtyt, a Dutch author of the seventeenth century, whose work was translated by Mr. Chamberlayne, F.R.S., and published by the Messrs. Longmans, & A.D. 1716-19.



'Almer c'est vouloir, et vouloir c'est aimer.' Persons with a small thumb are ruled by the heart, those with a large by the head."

This explains what we never knew before—i.e. what was exactly meant by "the Rule of Thumb."

But, after all, this is a curious book, and will repay curious people for their trouble in perusing it.

#### SWANSEA NATURAL HISTORY.

*Materials for a Fauna and Flora of Swansea and the Neighbourhood.* By L. W. Dillwyn, F.R.S. Not published. 1848.

AMONG the congenial circumstances which attended the meeting of the British Association at Swansea, we must record the printing of 300 copies of this work and its liberal presentation to the members. Mr. Dillwyn, a gentleman of fortune, residing in the neighbourhood, has during a long life interested himself in the study of its natural history, and these are the results of his observations, set down in a plain and simple manner. The contents embrace zoology, ornithology, ichthyology, entomology, and botany; and we dare to say the catalogue is very complete; for the author not only specifies what he has ascertained, but noticed all reported specimens, with his grounds for doubting or accepting them.

Of such a production it will be manifest that we cannot give an analysis; but we trust it will amuse our readers to have a few of the most curious "Notes" extracted, as examples of the pleasant and instructive way in which Mr. Dillwyn has performed his acceptable task. The opening Note, on the mammals, may launch our Ark, so filled with animal life, like that of Noah of diluvian memory:

"*Canis familiaris.* Var. *Lin. Dog.*—In 1804, there was in the Neath Valley a remarkable breed of a sort of sheep-dog, with nothing more than a flat depression, about half an inch broad, between the nostrils, and was said to have originated in a bitch which had her nose longitudinally cleft by some accident. The breed retained this deformity for several years, but I believe it is now extinct."

The only other mammal we shall specify is the—"*Talpa Europea.* *Lin. Mole.*—Dr. Turton, in the spring of 1807, procured two varieties from Kilymanellwyd, near Llanelly, and one was white, with a rusty red throat and belly, and the other mottled black and white. They are described in an Appendix, at the end of his British Fauna. Mr. Hugh Mahony, the Keeper of our Museum, has been offered several white Moles for sale, and thinks that they are rather common in this neighbourhood."

A good many rare birds adorn the ornithology of this part of South Wales; and among the rest, Mr. Dillwyn mentions the "*Sylvia oenanthe*—*Yarrell*—Wheatear, and says—"I have frequently seen this bird on the bank, decorated by copper-smoke, at Morriston; and a white variety was caught alive at Margam, in August, 1840, and presented by Capt. Lindsay to our Institution."

We have quoted this passage for the entertainment we found in the expression "*decorated*," which can hardly be understood by any one who has not seen and felt the clouds of copper-smoke which float over miles of the Swansea Valley, and destroy nearly all vegetable life, except potatoes, which are not affected by it, and horse-radish, which seems to flourish in boundless vigour beneath its influence, covering large patches of land, and growing even on the slag or scoria thrown out in large hills from the works. Elsewhere, in the nearer vicinity, large woods have disappeared within the memory of man, the herbage is withered up, and all but human health and the salubrity of pigs are stated to be more or less injured by this metallic atmosphere. By-and-by, it is to be hoped, chemistry and mechanical means may be discovered to annihilate, as they have already succeeded in abating, the nuisance; but at present, especially when the air is heavy, there are at least half-a-dozen of miles in length and two or three in breadth much infected with the laden gas. But to return to our birding. Another of the *Sylvia* family, the *Sylvia luscina*, or nightingale, is thus referred to by the author:

"In the Swansea Guide this species is said to inhabit the neighbourhood, and the late Col. Llewelyn, of Penllergare, who paid much attention to the notes of birds, told me that he had once unquestionably heard its song in the small wood at the back of Pyle Inn; nor have I met with any equally credible account of its being heard in South Wales. My late friend, Thomas Penrice, Esq., completely failed in an attempt to introduce this lovely songster, by bringing several cages of them from Norfolk, and turning them out in his woods at Kilvrough, which are warmly situated by the sea-side, about eight miles to the westward of Swansea."

Of the Tetrao tetrix, we are also told:

"Though formerly frequent, this species has now become extinct in the neighbourhood. The Rev. Miles Bassett told me that, soon after he came to the living of Swansea, in 1757, he has shot a couple between Penllergare and the village of Llangafelach, before breakfast; and that for some years after this period, there was no Welshman, besides himself and one or two others, who attempted to shoot flying."

And of the Ardea stellaris, or bittern:

"Formerly bitterns were often met with, particularly on Crwmllyn Bog, which has now been extensively drained, and, as cultivation increases, they become rare. Mr. L. L. Dillwyn, in December, 1840, shot two near Loughor Marsh, and has never heard of more than seven being seen in any year."

Of the woodcock, Mr. Dillwyn says:

"I once shot a woodcock at Pellergare, which weighed full sixteen ounces, and I believe that they rarely weighed more than thirteen. A variety, arising from some accident, on January 29, 1826, was sent to me, with a tuft of white feathers on the head; and the white woodcock, which has been mentioned by Bewick for its remarkable reappearance in three successive winters, is still preserved at Penrice Castle."

Before leaving the ornithology, we may mention that a gentleman belonging to the Association has succeeded in making a valuable addition to the list in the *Columbus Arcticus* or Black-throated Diver.

In ichthyology some interesting facts are communicated; for instance, relating to the Pike:

"On the Margam Estate is a lake, called Kenfig Pool, covering about 100 acres, which has long been celebrated for the best Pike-fishing in Glamorgan-shire; and my friend Mr. Talbot informs me that, for the last five years, they have entirely disappeared. The Keepers believe that one monstrous fish still remains, which once broke tackle that had hooked five, and now destroyed all the others. The largest Pike Mr. Talbot ever saw from this Pool, weighed 36 lbs., and was caught by Mr. William Lovelock, of Kenfig."

Again, of the Salmo cambricus of Donovan or Sewin (which we pledge ourselves to be, when eaten quite fresh from the water, a very delicate and delicious fish) Mr. Dillwyn says it is "common in the Tawe, as well as other rivers in the neighbourhood; and the admirers of this excellent fish have been surprised by finding that it is now considered to be the Bull Trout, which Mr. Jenyns has described with 'Flesh inferior to that of the Salmon, and cutting yellow.' Sir Joseph Banks told me, till he tasted it fresh from a river in Carmarthenshire, that he had no idea of its delicate flavour, and that he thought it too fat to bear a long journey, and that the species was wholly unknown in the London markets. Notwithstanding the great disparity in the flesh, Mr. Talbot has found in his streams at Margam, that the Bull Trout are always male, and the Sewin female, from which he has concluded that there is no more than a sexual difference between them. Jones, in his 'History of Breconshire,' vol. i. p. 10, says that Sewin are numerous in all the Welsh rivers which flow to the southward, and that they are not seen in any others."

We can scarcely credit that the Sewin is the wife of the Bull Trout; but we have of late been en-

lightened with so much unexpected information on the subject of the breed, races, and marks of fish, that we dare not express a decided opinion one way or another. *Inter alia*, we did not look to find the Anchovy in this locality; but Mr. Dillwyn informs us—

"I believe that a summer never passes without finding some of these fish in our weirs; and the fishermen inform me that in hot weather they are frequently very numerous, and with a proper net might be taken in great numbers."

There is also the Torpedo; and we learn:

"It is placed in our [the Swansea] Fauna, both in the 'Swansea Guide,' and in the old list which the late Mr. Collins gave me; and on July 17, 1840, a male was taken in a Swansea weir, which my son, L. L. Dillwyn, purchased alive, and a full account of it is given in my 'Memoranda.' There can be no doubt that it breeds in our Bay, and Mr. Moggridge has ascertained from the fishermen, that a year rarely passes without five or six of them being taken in the weirs. One of these men, who called it a *Numb Fish*, told me that he has known it to lie quite concealed in the mud, both in the weirs and in the sea, at low water, and that the shock creates a great surprise when it is accidentally trod on."

And another fish, which furnished Dr. Buckland with a theme in one of his entertaining post-prandial speeches—viz., the Hammer-headed Shark, is thus described:

"Having, in August, 1839, been taken in the neighbouring Bay of Carmarthen, this monster has no claim to be placed in our 'Fauna,' and was carried by the fishermen into Tenby, where the stuffed skin was lately sold for 28s, to an itinerant showman; and my friend, Mr. J. E. Gray, has seen it last winter exhibited in a caravan of strange curiosities, at Camberwell Fair. A full account of it was drawn up by my son, Mr. D. Llewelyn, and is printed in the Sixth Report of our Royal Institution."

The Entomological Notes do not bring us acquainted with much of novelty. The following is an example:—

"*Clytus arietis.* Stephens. Only remarkable at Swansea, from my never having seen it after 1805 till 1831, when it again became gradually rather plentiful."

The disappearance and reappearance of animals, fish (as in the Pike above quoted), and insects, involve phenomena which no man can explain; and in botany they are still more extraordinary and inexplicable. That branch of the science of natural history the author appears to have most sedulously cultivated, and upon it many of his remarks are possessed of considerable value. *Ex. gr.:*

"*Asparagus officinalis.* On the Wormshead, and several other cliffs in Gower. In Martyn's Edition of 'Miller's Dictionary,' it is denied that the Sparrow Grass of our gardens is the same species, and it would be interesting to ascertain whether the young shoots of the wild plants possess the same flavour; in some experiments of mine they have not thriven in the richer soil to which I removed them."

"*Erica vagans.* Mr. Thomas Milne, A.L.S., (a Botanist not likely to be deceived,) told me that he had seen specimens which he knew had been gathered on a heath, somewhere near Pontardylais; but I have repeatedly searched for it without being able to find it. I was also assured by Dr. Turton that a wild specimen of *E. Mediterranea* had been brought to him, which was gathered in the same neighbourhood."

"*Geranium sanguineum.* Common about the cliffs of Gower."

[Of this we may notice the extreme brightness of the colour in this locality.]

"*Melica cerulea.* This grass is not anywhere uncommon, and I mention it only with reference to an experiment which, though very desirable in this neighbourhood, I have neglected to try, and which is suggested by the following quotation from Davis's 'Welsh Botany':—

"It is remarkable that this plant has perfectly withstood the sulphureous fumes of the copper-works at Amlwch, where every other vegetable within

\* A monstrous size.—ED. L. G.

† About Margam it is called a *Treb-g-dail*, but this, according to Owen's Dictionary, is the Welsh name for a Chub."

certain distance, even the crustaceous Lichens, have been destroyed; and from its extreme toughness, it seems designed for some uses, which we do not know to have been hitherto made of it. It is likewise most easily propagated, as it is naturally produced in cold moist sterile soil.\*

"*Plantago maritima*. On the rocks and sandy shores in Langland, Caswell, and other Bays. My late friend, the Rev. Hugh Davies, in his 'Welsh Botany,' p. 16, says that the Welsh call it '*Baracan-y-ddefaid*, and *Sampier-y-ddafad*, and that these names, and the almost miraculous properties which this plant possesses for fattening cattle, have been erroneously attributed to the *Salicornia herbacea*, by Pennant, and to *Crithum maritimum*, by Withering."

"On the sandy sea shore, opposite the Race-course on Crumlyn-burrows, and more than a mile from any sort of house or garden, Mr. L. L. Dillwyn, in 1839, found a thriving plant of *Yucca gloriosa*, and it had all the appearance of having risen from a seed which the tide had cast there. Notwithstanding its exposed situation, and the looseness of the soil, this native of Carolina was not materially injured by the unusually severe winter of 1840-1; and Mr. Moggridge informs me, that for two or three years it continued to thrive, till it was destroyed by a heap of shingle, which a violent storm and high tide threw over it."

What the Gulf or other ocean streams convey of fish or plants to distant shores, affords much room for inquiry and speculation; and in most of our navigable rivers the throwing out or deposit of ballast brought from foreign parts has been a prolific source of introducing new specimens to our Flora. In connexion with these, we may cite the remarks on the *Teucrium chamaedrys*, "discovered," says Mr. Dillwyn, "by my friend, J. E. Bichen, Esq., in profusion on the limestone crags above South Cornely; and Mr. Bichen thinks, as it had only been found on old buildings, that it has now 'a better claim to being indigenous than before.' Ray has, however, observed, '*Quamvis aliquoties invenimus in marginibus agrorum satis remotam ab aliquo edificio sponte tamen provenire non audeamus asserere*;" and as the plant was formerly cultivated everywhere for medicinal purposes, I apprehend there can be no doubt that it was originally a stranger."

Upon this we have the subjoined instructive botanical note, an extract of a letter from Mr. Bichen:

"It may be classed in habitat *Vinea major*, the hop, and the wallflower, none of them, probably, truly indigenous, but established so remotely that they cannot be rejected any more than we could refuse to the descendants of the Saxons the claim of being natives. One of the *Heliozores* belongs to Castles; *Mercularia annua* is found, I believe, almost always in the vicinity of ancient cities; our native *Aristolochia* is said to be the attendant on religious houses; while *Urtica pilulifera* is remarkable for being usually found at places where the Romans had an establishment. London and its vicinity has its peculiar species; *Sisymbrium Irio*, said to be produced by the fire of 1666, belongs to London and Berwick-on-Tweed. When Moscow was burned, another species of *Sisymbrium* sprang up in great profusion in the rubbish. *Epilobium roseum* seems peculiarly to belong to gardens, at least I never saw it away from them, yet it was never cultivated. So *Veronica filiformis* is now to be seen in various places, and in some of the gardens about London in abundance. I found it three years ago in the fields about Cornely, and have observed it every season since; and I learn from our friend, Mr. Forster, that it is not uncommon."

And with this piece of general intelligence we conclude our gathering from Mr. Dillwyn's literary and scientific compliment to the British Association. Grateful to them as it has been, it may not be improper to add that they equally if not more enjoyed the hospitable realities of the animal and vegetable kingdoms so profusely furnished by their Welsh entertainers. That genuine oxen, sheep, and lambs were, in their parts, welcome as badgers, otters, or shrews; and salmon, and sewin, and turbot as much

prized as remora, dogfish, or stickleback; and turkeys, ducks, and chickens quite as much as shrikes, chat-terers (not a-wanting in our body!), or goat-suckers (which should be an abomination hereabouts, only one can hardly see a goat); and peas, cauliflowers, and potatoes, more than acornite, fetid hellebore, or Iris foetidissima!

Amid these vivres, and the wine and welcome which attended them, if their guests did not imbue their hosts with much of dry science, it is to be hoped that they convinced them of the possibility of there being a close and happy union between philosophy and gastronomy, and a friendly feeling of present kindness and lasting recollection of Cambrian hospitalities!

#### THE DODO!

*The Dodo and its Kindred.* By H. E. Strickland, M.A., &c., and A. G. Melville, M.D. Edin., &c. 4to. Reeve, Benham, and Reeve.

THE Dodo has been sung in the pages of the *Literary Gazette*, which event is thus recorded in the bibliographical list appended to this volume,—

"1847. (Do-do).—Forbes (Edward). The fate of the Dodo, an ornithological romance; in the '*Literary Gazette*,' July 3, 1847, p. 493."

Many scientific particulars concerning it were also recorded there; but it was reserved for Mr. Strickland and Dr. Melville to invest the subject with a halo of interest and science which we could hardly have believed possible; and to give the public a volume at once curious and handsome in its illustrations, and no less curious and attractive in its text. The resurrection of the Dodo, Solitaire, Oiseau bleu, and other extinct brevipennate birds of the volcanic islands of Mauritius, Rodriguez, and Bourbon, has been most skillfully effected, and the minutest investigation applied to every branch of the inquiry, or we should rather say inquest, upon the skeleton bones. The engravings from ancient pictures and the productions of olden time voyagers add a zest to the inquiry, and the conjunction of the pictorial with the historical evidence is as amusing as it is convincing. On the general scientific view, Mr. Strickland thus speaks in his introduction, leaning, it will be seen, though rather doubtfully, to the *Vestiges of Creation* theory.

"The geographical distribution of organic groups in space is a no less interesting result of science than their geological succession in time. We find a special relation to exist between the structures of organized bodies and the districts of the earth's surface which they inhabit. Certain groups of animals or vegetables, often very extensive, and containing a multitude of genera or of species, are found to be confined to certain continents and their circumjacent islands.\* In the present state of science we must be content to admit the existence of this law, without being able to enunciate its preamble. It does not imply that organic distribution depends on soil and climate; for we often find a perfect identity of these conditions in opposite hemispheres and in remote continents, whose fauna and flora are almost wholly diverse. It does not imply that allied but distinct organisms have been induced by generation or spontaneous development from the same original stock; for (to pass over other objections) we find detached volcanic islets which have been ejected from beneath the ocean, (such as the Galapagos, for instance,) inhabited by terrestrial forms allied to those of the nearest continent, though hundreds of miles distant, and evidently never connected with them. But this fact may indicate that the Creator in forming new organisms to discharge the functions required from time to time by the ever vacillating balance of Nature, has thought fit to preserve the regularity of the System by modifying the types of structure already established in the adjacent localities, rather than to proceed *per saltum* by introducing forms of more foreign aspect. We need not

\* To cite one instance among a thousand (certainly a considerable number, *Ed. L. G.*); the group of Humming Birds, containing hundreds of species, is exclusively confined to the American continent and the West Indian Archipelago.

however, pursue this inquiry further into obscurity, but will merely refer to the law of geographical distribution, as bearing on the subject before us."

Upon this *rextata questio* we will not venture, but go on with our author, as he explains his aim,—

"The aim of the present work is to vindicate the honesty of the rude voyagers of the seventeenth century, to collect together the scattered evidences which we possess, to describe and depict the few anatomical fragments of these lost species which are still extant, to incite the scientific traveller to search for further evidences, and to infer from the data before us the probable rank of these birds in the System of Nature."

"These singular birds, which, for distinction, we shall henceforth designate by the technical name *Didina*, furnish the first clearly attested instances of the extinction of organic species through human agency. It has been proved, however, that other examples of the kind have occurred both before and since;\* and many species of animals and of plants are now undergoing this inevitable process of destruction before the ever-advancing tide of human population.† We cannot see without regret the extinction of the last individual of any race of organic beings, whose progenitors colonized the pre-adamite Earth; but our consolation must be found in the reflection, that Man is destined by his Creator to be fruitful and multiply and replenish the Earth and subdue it. The progress of Man in civilization, no less than his numerical increase, continually extends the geographical domain of Art by trenching on the territories of Nature, and hence the Zoologist, the Botanist of future ages will have a much narrower field for his researches than that which we enjoy at present. It is, therefore, the duty of the naturalist to preserve to the stores of Science the knowledge of these extinct or expiring organisms; when he is unable to preserve their lives; so that our acquaintance with the marvels of Animal and Vegetable existence may suffer no detriment by the losses which the organic creation seems destined to sustain."

The Mauritius was discovered very early in, or towards the middle of the 16th century, (for authorities differ as to the date,) by Mascaregnas, a Portuguese; but it is not till the voyage of the Dutch Van Neck, who took possession of it, and changed its name from Cerne, in 1598, that we learn anything certain of the island or its productions. A copy of a very dull plate, No. 2, of this voyage, representing the variously employed, in fishing, catching dodos, &c., illuminates the description. We soon after learn, that though Van Neck's sailors got surfeited with dodo feasting, succeeding visitors found them very good eating, and not coarse and bad, in spite of their being large enough to weigh fifty pounds. Thus, in 1602, the strange birds became famous in naval journals as the Wallich-Vogel; the Dod-aarsen, the Drouten, all finally absorbed in Dodo, as Mr. Strickland observes,—

"There is little doubt that the name is derived from *Dodoor*, which in the Dutch language means a sluggish, and is very applicable to the lazy habits and appearance of this bird. *Dodders* is not improbably a cant word among Dutch sailors, analogous to our term '*lubber*,' and perhaps aims at expressiveness rather than elegance. Sir Thomas Herbert was the first to use this name in its modern form of *Dodo*."

In the year 1638, Sir Hamon, the father of Sir

\* As instances, I may mention the *Cervus megaceros*, or Irish Elk, and the *Bos primigenius*, or Urus, destroyed in ancient, and the *Nyctena Steelleri*, or Northern Dugong, in modern times.

† Among animals whose doom is probably not far distant are the *Bison priscus*, or Aurochs, (preserved only by imperial intervention in the Bialowickia forest, whence the Czar has lately enriched the London Zoological Garden with a living pair); the *Nespor productus*, (a Parrot originally from Philip's Island, near Norfolk Island, where it is now destroyed, though a few individuals, which refuse to propagate, still survive in cages); the two (not improbably three) species of *Apteryx*; and the almost equally anomalous burrowing Parrot, *Strigops habroptilus*, of New Zealand, &c.

‡ Van Neck's name, because even a long boiling would scarcely make them tender, but they remained tough and hard, with the exception of the breast and belly, which were very good."



Roger Lestrang, gives an account of a dodo (Sloane MSS. British Museum) which was a show in London, and the picture thereof "hung out upon a cloth;" no other trace of it can be discovered. It may have furnished the head and foot to the Ashmolean Museum at Oxford. There is also a leg in the British Museum, and a head at Copenhagen; and the last notice of the creature is in a ship's journal, of the date of 1678.

In 1644, the Dutch first colonized the island of Mauritius; and it is probable that these gigantic fowls, deprived of flight, slow of foot, and useful for food, were speedily diminished in number, and finally exterminated by the thoughtless rapacity of the early colonists. Their destruction would be further hastened, or might be mainly caused, by the Dogs, Cats, and Swine which accompany Man in his migrations, and are speedily naturalized in the forests. To such animals the eggs and young of the Dodo and other birds would be a dainty treat; and that this is no mere conjecture is proved by Leguat, who tells us, 'Here (in Mauritius) are Hogs of the *Chinas* kind. . . . These beasts do a great deal of damage to the inhabitants, by devouring all the young animals they can catch.'

So ended the dodo dynasty; and in 1693 a living descendant of the race was sought for in vain.

Into the anatomical part of the dissertation we will not enter. We are content to figure it to ourselves as a massive clumsy bird, ungraceful in its form, and with a slow waddling motion. We cannot form a better idea of it than by imagining a young duck or gosling enlarged to the dimensions of a swan; and, according to one of those cases, of which we have many examples in zoology, where a species, or a part of the organs in a species, remains permanently in an undeveloped or infantine state.

In order that our readers, and especially those in the eastern hemisphere, may shape their ideas of it in like manner, we have procured its portraits to illustrate this review.



1. From the voyages of Peter Van den Broecke.



2. From Sir T. Herbert's visit to the Mauritius, in 1637.



3. A Hen, from the same.

The question of its classification is fully discussed, and it is denied to belong to the Vulturide, and assigned to the Columbidæ. It is, in fact, asserted to have been no vulture, but a pigeon,\* though probably between the inessorial and gallinaceous orders.

There is no *a priori* reason why a pigeon should not be so modified, in conformity with external circumstances, as to be incapable of flight, just as we see a grallatorial bird modified into an ostrich, and a diver into a penguin. Now we are told that Mauritius, an island forty miles in length and about one hundred miles from the nearest land, was, when discovered, clothed with dense forests of palms and various other trees. A bird adapted to feed on the fruits produced by these forests would, in that equable climate, have no occasion to migrate to distant lands; it would revel in the perpetual luxuriance of tropical vegetation, and would have but little need of locomotion. Why then should it have the means of flying? Such a bird might wander from tree to tree, tearing with its powerful beak the fruits which strewed the ground, and digesting their stony kernels with its powerful gizzard, enjoying tranquillity and abundance, until the arrival of man destroyed the balance of animal life, and put a term to its existence. Such, in my opinion, was the Dodo, a colossal, brevipennate, frugivorous pigeon.

Of the solitary we shall say but little. It was found on the island of Rodriguez, and was almost as "strange a fowl" as the dodo, to which it bore considerable resemblance. The oiseau bleu, and other extinct animals in these isles, we also leave to perhaps be revived from their dry bones hereafter; and conclude with the hopes expressed by Mr. Strickland that digging and excavating in the places where their remains are most likely to be found, may shortly reveal more of them to our better acquaintance. Meanwhile we must, in the name of all natural historians, thank that gentleman for the pains he has bestowed on the subject, not forgetting his able coadjutor, Dr. Melville, nor his publishers, who have done so much justice to the abundant picturesque, scientific, and valuable embellishments of this volume.

#### YACHTING IN NORWAY.

*A Yacht Voyage to Norway, Denmark, and Sweden.* By W. A. Ross, Esq. 2 vols. Colburn.

ACCOMPANYING Lord R—, with another friend, Captain P—, in his lordship's yacht Iris, of 75 tons, our author enjoyed a merry three months' adventure by sea, fiord, and land, from May to August last year, of which he has here given a light and lively account, interspersed with considerable specimens of sentiment and the feeling which belongs to the poetic disposition. The crew of the cutter "consisted of seven or eight regular seamen, a sailing-master, mate, cook, steward, and a boy to assist him. A fine Newfoundland dog, called 'Sailor,' and a droll little ring-tail monkey, called 'Jacko,' also joined in the mess for ard."

Lord R— and Captain P— were determined salmon fishers, and resolute to prove if the reports of its abundant sport in Scandinavia were correct; but they set out too soon in the season, and arrived at

\* Mr. Maunders's *Treasury of Natural History*, reviewed in our last, may be tested by the accurate account he gives of the Dodo. He is the same throughout with the most recent as well as older subjects.—Ed. L. G.

Christiansand before the fishing had begun. The party, however, set to divert themselves by all other resources in their power. They killed a bear, which appears to have been rather dull work; and almost a pity, for Mr. Ross says:—

"These animals, unless severely pressed by hunger, will never attack any living creature, and will even avoid with much care those parts of the mountains where cattle are wont to feed; and it is beyond the recollection of the oldest inhabitant, or, indeed, the reach of tradition, when a child has been, in the slightest degree, hurt by the Norwegian bear. On the contrary, it is well known that these animals have met children in their track, and though at the time much oppressed by thirst and famine, have passed them harmlessly by."

Tired of Christiansand, our countrymen went to Copenhagen, to while away the time till the salmon should run from the sea, and here we are told—

"The only pump in Copenhagen is to be found in a vault beneath this (the king's) palace. A Dane led us through numerous dark cloisters; and arriving at last in front of this pump, stood still, and with brightening eyes, as well as great exultation of manner, pointed to it.

"By the traveller who loiters along the streets of Copenhagen, half-buried in the walls of many houses, a cannon-ball may here and there be seen. In remembrance of Nelson's action, the Danes preserve, like the apple of their eyes, these destructive missiles in the same place and position they were lodged forty years ago; and that the stranger may not fail seeing these emblems of 'British friendship,' as the term goes, their visible sections are daubed all over with black paint, so that they stand boldly out from the snowy aspect of the houses."

Elseneur was the next sojourn, and then Falkenberg, where they arrived at midnight, and "by dint of much loud knocking, awoke the people at an inn or cabaret, where we slept. The following morning, as soon as it was light, we went to fish in a river near the town, but encountered the same good fortune of which we had hitherto made no complaint, considering that the mere sport of angling for salmon had brought us to Scandinavia; and up to the present moment we had not seen the scaly snout of a single fish. We murmured not; but could not resist the doubt that the existence of salmon in Northern Europe was a reality; nor could we conceal from ourselves the absurd light in which we appeared to the simple people, who each day, with mute astonishment, beheld us, late and early, in storm and calm, deliberately and untiringly slog with a long line of cat-gut their legendary streams, in the vain hope of capturing a creature not to be caught in them; and which effort on our part was, in their opinion, a striking proof of the aberration of human intelligence.

"We had now travelled over a space of more than a thousand miles, and were as far removed from the object of which we came in pursuit, as the first hour when we left Greenwich; and yet our diligence had been exemplary, our inquiries most minute, and our measures in carrying out the information we received most prompt. It was the philosopher's stone over again; and, indeed, I had determined in my own mind to examine carefully the skull of the first salmon we caught, and ascertain if the long-desired pebble was not there; and, I must confess, I entertained this idea very sanguinely, since I was borne out by the Swan of Avon's assertion, that there is certainly a precious jewel in the toad's head. Why not in the salmon's head too? or else, why all this mystery in hooking him?"

The time had not yet arrived, so they sailed to Gottenborg, and thence returned to Christiansand and northward to Larvig, where Captain P— did hook a fine salmon, but it broke his line and got off. Fortune, however, at last rewarded their perseverance, and they caught a number of fish of from fifteen to twenty-five pounds' weight. On one day the following curious incident is told—

"Overpowered at last by the fury of the vertical sun, I entered the tent that had been formed by raising the gig's sail on the four oars.

"R— and P— were still slumbering, and I was lying under the tent, on the ground, reading the *Adventures of Peregrine Pickle*. The sailors who had formed the boat's crew were sauntering about along the banks of the river; and the coxswain, who generally on such excursions as the present performed the part of cook, was seated on a piece of rock which projected into the bubbling stream, busily occupied in the preparation of dinner. Whistling and humming by fits, one of the sea-songs of his country, he wore the time away while peeling some potatoes, which, one by one, as his large knife, along from his belt by a piece of yarn, deprived of their jackets, he threw into an iron pot, having rinsed them previously in the flowing river. Within his sight lay, on a white towel, a leg of lamb, bewitchingly sprinkled with salt, all prepared to be cooked, but only waiting for the potatoes to bear it company to the fire. Absorbed in my book, I paid little attention to what was passing around me, except by an occasional glance, until I heard a loud shrill scream, and then a louder rustling of feathers, as if this was the noon of the last day, and Gabriel having blown his trumpet without my hearing it, had actually reached the earth. I jumped up, and running out of the tent, saw the coxswain standing like a nautical statue, motionless, gazing upwards, and with a stick grasped firmly in his hand. Following his example, I turned my eyes reverentially to the skies, and distinguished, from the blaze of day, a most lusty eagle making the best of his way towards the residence of Jove with the leg of lamb in his beak; and as if conscious of the superiority his position had given him over us, waving the white towel, grasped with his talons, hither and thither in the air, like a flag moved exultingly by conquerors after victory.

"'It's gone, sir,' said the sailor, lowering the uplifted club, 'and, blow me, if I ever heard him coming.'

"I shall not forget the utter disgust of R— and P—, when, like a couple of Samsons, they awoke and found that their hair was certainly untouched, but that the most positive support of their strength had been cut off irretrievably, and their dinner of lamb gone where all innocence should go. Some bread and cheese, together with a few eggs which the boatmen purchased for us at a neighbouring cottage, supplied the loss of our lamb. The coolness of the afternoon gave R— and P— an opportunity to renew their ardour, and at six o'clock they both might have been found encouraging the habit of patience in the art of angling.

"The rattling of their reels, gave at almost every half hour the announcement of a bite, and hurrying in their prams to the shore, my friends, after the torture of another half hour, would, with the assistance of a gaff, place the unhappy salmon among the long grass growing on the river's brink.

"The Norwegians, and I believe all persons who have the sense of taste developed to a most extraordinary nicety, say that the fish which are caught with the hook are not to be compared in flavour to those taken in the net. Though I cannot account for the exquisiteness of taste that can distinguish between one and the other plan of catching the salmon, I can very easily suppose that the pain, more or less, given in the destruction of an animal, may increase or decrease the flavour of the flesh, when used as food. A fish drawn backwards and forwards through the water with a hook piercing its gills, or the more tender fibres of the stomach, till it is almost jaded to death, and then lacerated with such an instrument as the gaff, must endure such an accumulation of the most intense pain, that the sweeter juices of the flesh escape during the throes of a protracted death, and render its taste more stale and flat. But the fish, taken in the net, suffers no injury; and free from pain, is instantaneously deprived of life, while the muscular parts retain all the vigour and nutriment requisite for human food."

A custom of the country is thus described:—

"A Norwegian gentleman had asked me to dine with him, and as R— and P— would not return much before midnight, I did not decline an invitation

that was not only hospitable, but would give me an opportunity of seeing more of the habits and character of his countrymen. The dinner was prepared at an early hour, one or two o'clock. The style of cookery was the same as in England, except the manner in which the salmon is dressed, for it is cut up into small junks and fried; but the most ordinary and esteemed way of eating the salmon is to smoke it, which is nothing more or less than an excuse for swallowing the fish raw.

"After dinner the host filled two glasses of wine, one for himself and one for me; and sidling close up to my chair, placed himself arm and arm with me. I could not understand his meaning, and watched with no little anxiety the next act of familiarity he would commit. My eyes glanced round the table; but the gravity of every man's face was ecclesiastical in the extreme. Without unlocking his arm from mine, the Norwegian raised his glass in the air, and motioned with his hand to me to do the same. I did so. He then drank off the wine, and bade me drink in like manner. I did that likewise. I had thus followed my friend's injunctions, and had scarcely, with a smile, replaced on the table the glass I had drained, when I received a box on the ear. Starting from my chair at the unprovoked assault, I was about to break the decanter over the Norwegian's head, when a gentleman seized hold of my right hand, and begged me to be pacified, for that it was merely the usage of the country in pledging to the health of a friend. He said my host would be highly gratified by my retaliation.

"We have simply then been drinking each other's health?" I asked.

"No more, sir," my mediator replied.

"Ashamed of my hasty and most unmannerly conduct, I gave the amicable cuff, and all was merriment again."

As the dialogues and exploits of our jovial and jocular yachters, though characteristic of the set to which they belong, are not likely to be so entertaining out of it as they are in it, we shall not travel into such matters. In trouting they found the trout taste of turpentine, from the quantity of fir in the water. They traversed floods up and down, shot seals and gulls, and every sort of *fera natura* that came across them. Mr. Ross met beautiful and romantic peasant and other girls, and fell desperately in love with them at first sight; but these are affairs with which we dare not meddle. At Atron they scaled the mountains; saw the reindeer coaxed to hand with salt, as a horse in the field is with corn; encountered a violent storm on their voyage home, but happily arrived safe and sound, together with Jacko, whose tricks, adventures, and instincts, are not the least amusing parts of the publication. It is just fit for an autumn book at the seaside, or other indolent resort.

#### THE SCOTTISH CHURCH.

"*Presbytery Examined: an Essay, Critical and Historical, on the Ecclesiastical History of Scotland since the Reformation.* By the Duke of Argyll. Pp. 335. Moxon.

A SENSIBLE, shrewd, and moderate work, giving a clear and comprehensive view of one of the most important Sects which sprung out of the Reformation. Most truly does the noble author describe it, when he says,—

"It is right to acknowledge that as a Presbyterian I cannot pretend to be free from that influence which personal and family associations must always, more or less, exert. But that it is not such as would be written by a mere partisan of Presbytery, I leave to itself to prove—certain that in many respects it will meet, not with the approbation, but the censure, of the more zealous members of that communion. I have adopted some opinions which cannot fail to be obnoxious to those with whom every tradition of their Church is sacred. But I shall be more than recompensed for the disapprobation of such—much as I respect them—if I have redeemed the history of Presbytery from the prejudice which some of these traditions have cast upon it, in the eyes of more

impartial judges:—if I have vindicated its character from its own representation of itself, by extricating the great principles on which its system was deeply founded, from the inflated language, and provincial dogmas, in which they have been too long misrepresented to the world.

"I have long felt that many of the forms in which Presbyterians have been wont to express certain of their principles, are most illogical and fallacious in themselves, and are calculated to produce the most erroneous impression on the nature and constitution of the Presbyterian Church. It has, in consequence, been often with regret, but never with surprise, that I have seen Englishmen mistaking totally the nature of its claims, and condemning them as but a new form of the claims of priesthood."

The author disclaims any hostility to Episcopacy in the abstract, or against the English Church in particular, and indeed seems inclined to think that some of the observances of the latter might improve the dogmatic worship of Presbyterians; "needlessly bare of furniture." The Essay was called forth by a publication emanating from the Spottiswoode Society, under the title of *Presbytery Examined*, written by a Scottish bishop, the Right Rev. John Sage, who died in 1711; against whose opinions, and the Society which has reproduced them, the Duke speaks rather contemptuously.

The great distinguishing principles of the Presbyterian Church are pointed out to be the conjunction of the laity with the clergy in governing; the repudiation of the exclusive claims of priesthood; and the assertion of civil and religious liberty as the birth-right of every individual. Upon these high questions, applicable now as ever to the conditions of society, the Duke observes,—

"The Convocation of the Church of Scotland was never a Convocation of the Clergy only. It was a great gathering—from all orders in the State—of men whom their Christian brethren had chosen to represent them there. 'The General Assembly of the Church convened at Edinburgh, where were present Superintendents, Ministers, Deacons, Commissioners from Towns and Churches';—such is the common opening of the minutes of their proceedings. The great principle here involved has not, we think, been sufficiently remarked in connexion with the history of the Church of Scotland. It entirely separates between the pretensions of 'The Church,' otherwise defined, and those high and uncompromising claims of independent power, which Scottish Presbytery always advanced, and which—though erroneously expressed in a dogmatic form—it had thus, constitutionally, the soundest title to prefer. We have deemed it our special duty in these pages, to point out the claim of Scottish Presbytery to the honour of having laid down this principle so early so distinctly; and of having bravely defended it from all attack, through grievous years of struggle and oppression. It is necessary to dwell on this fact, for, as we have already explained, Presbyterian forms of speech are often, if not inconsistent with its deeper principles, at least such as to conceal and misrepresent them. It is right to dwell on it, as due to the memory of men, the harshness of whose character has often obscured the truth of their opinions, and the value of their services. Above all, it is useful to dwell on it, as reminding us of a very needful principle, at a very needful time. We have had no space here to do more than touch a few of the thousand important consequences which this one principle involves. We can only ask our readers to consider well its value in the controversies which are raging now; and to enable them to do so, it cannot be out of place to remind them, that it is a principle in which one of the most remarkable minds of our time found room large enough to absorb its deepest interests, and in which a most holy disposition saw the possible fulfilment of its brightest hopes for the welfare of Christ's Church on earth.

"Doctrinally, ecclesiastically, politically, its power is great indeed. Doctrinally—if the Christian ministry is not a priesthood, there is a final end of half the superstitions with which Rome deformed religion.



Ecclesiastically—if they are not vested, as an order, with any exclusive authority, there is an end of that spiritual usurpation which sanctified corruption, and closed every independent access to the truth. Politically—if the Christian Church is nothing but the Christian people, there is no ground left for any mystic distinction between Civil and Ecclesiastical authority. That separation which does really exist is placed in its true light—a separation not as between persons and persons, or between councils and councils, but simply between one class of subjects and another. If the boundaries of a nation coincided exactly with the boundaries of any one religious system—that is to say, if all the citizens of a State were members of the same religious body, one and the same assembly might rightfully and naturally legislate on both those subjects. It is merely the necessities of outward circumstance—the fact of religious divisions, and other facts of a similar kind—which prevent both those subjects being cognizable by one and the same authority. No Divine law would be infringed by an entire coincidence of the two authorities, were it practicable; still less is any such law infringed by a partial coincidence, where it very often is both possible and wise.

All this follows immediately and necessarily from the principle, that there is no special order, or caste of men, gifted with exclusive power in spiritual concerns. But this denial of a false and superstitious distinction only places in a clearer light that true distinction which really does exist. There is a distinction between temporal and spiritual things, and there must be a corresponding distinction—not necessarily in the men who legislate—but in the nature of the legislation. In temporal matters, human legislation is invested, *proprio jure*, with great authority—it is properly *enactive*. In spiritual things, human legislation has no direct authority; it is merely *declaratory*. In the one case, no number of dissentient voices is entitled to contravene the legislative power, because society has a right to enforce obedience to its civil laws. In the other case, if there be one single mind which dissents from a declaratory interpretation put upon the laws of God, that mind is entitled to maintain its dissent and to set upon it—because on such subjects human authority is none. Is there any principle, then, we ask, which cuts more directly at the root of extravagant pretensions on the part of religious bodies; and at the same time places on a broader, firmer basis, the rights of religious tolerance?

This quotation will afford a correct idea of the whole work, of which we have no hesitation to repeat that it is able, unprejudiced, temperate, and worthy of every serious consideration.

*Affection, its Flowers and Fruits. A Tale of the Times.* 3 vols. Newby.

SOMETIMES we say there is nothing new under the sun, and sometimes we think there is. At any rate, as a tale of the times, this performance is a novelty. Its declared object is to show, in opposition to the popular decrying school of deteriorating publication, that the wealthy and great may, by possibility, be benevolent and virtuous, and not the scourges of the lower ranks and oppressors of the poor. But the manner of proof is not equal to the design. On the contrary, it seems to us to violate probability too much to be received as a true picture of existing society. The prime mover of the drama, or rather the puppeteer whose strings he pulls, for instance, is a Lord Saxondale, who employs a sort of police of his own, knows everything and everybody, and has a finger in every pie, from a duchess's ball-room intrigue to a suicide's plunge off Waterloo Bridge. His agents and spies pervade London; and he is, in short, a secret tribunal personified, for good purposes, by any means or expedients. He bribes servants to betray their masters' or mistresses' private affairs; he sends persons to watch others at all times; he foments quarrels and exposes lives; and everything for the best. He has the reputation of being a

miser, whilst in reality he is doing all this good by stealth. Then there are gentlemen who are afraid of nothing, and involved in every sort of desperate scrape; and there is one lady living as the mistress, who goes mad on account of desertion, and is humanely tended and nursed by the daughters of an honourable father of superior station, with his full consent and approval. This is the most obvious mistake in the novel, for we cannot suppose the daughter of a distinguished old and rich family pitifully devoting herself to the care of a crazed cast-off lady of the utmost public notoriety, as coming within the scope of a tale of our times. An author of high principle, and several personages connected with the stage, actresses of repute and strict propriety of conduct, and patrons as vicious as there are in actual being, show that the author has not been altogether imaginary in his portraits. On the contrary, men upon town and club men, may readily fancy they can guess the originals of some of the studies; and this will recommend *Affection* to the affection of many readers of these classes. For the rest there is very considerable talent displayed; many of the scenes are highly wrought up, and the general development of character leading to conclusions not unnatural to their first conception on being introduced to the reader. Thus, if we have faults or indiscretions of a young author, (such as we have pointed out,) we have also the promise of an ability to avoid them hereafter, and produce works liable to no such objections.

*The Bloody Tenent of Persecution, &c.* By Roger Williams. Haddon.

THIS is, we think, the second volume published by the Hansard Knollys Society, which counts above a thousand members, at a subscription of half a guinea a-year, and is dedicated to the republication of early Baptist writers. An edition of *Pilgrim's Progress* was the first, by Mr. Offor, to which we have long owed an intention of some notice, for it is worthy of a sound review, and does speak of a certain place paved with such intentions as we confess. But editors of journals are, we hope, much excused. The present publication has historical features of interest, independent of the doctrines it maintains—perfect liberty of conscience, and no allegiance to earthly authorities. Well, Roger Williams left England to Charles I. and Laud, in 1630, and joined a preceding emigration of the Pilgrim Fathers, in Massachusetts. They soon became as intolerant of each other as any despotism they had fled from at home; and Williams was the victim of the "Bloody Persecution." He was too independent for the Independents and too puritanical for the Puritans. Banished from Boston, he established a sect, traversed the country, and settled Rhode Island, on the dominant principle of a theological oligarchy, "the saints shall rule in everything and all." The jealousy of Massachusetts followed and perplexed him. He returned to England, and from interest, if not personal connexion, with Cromwell, obtained a charter from Parliament, went back to America, and became a power, though still driven from post to pillar. With the religious disputes we have nothing to do; but there are some curious particulars of early America in the book, which afford curious notions of matters which are so often masked and misrepresented as to be worth nothing.

*Monopoly the Cause of all Evil.* By Arthur Condoctet O'Connor, General of Division. 3 vols. 8vo. Paris and London. Didot.

ONE thousand, six hundred and sixty-four pages, fifty thousand lines, four hundred thousand words, and all upon politics, are absolutely appalling to us. The very sight of the work lost us a night's rest; and we are free to confess that to do a reviewer or critic's duty by it is utterly beyond our power. Yet is the Editor of *Les Œuvres de Condorcet* a very able man, and one who has seen and thought much. His views embrace subjects of the utmost national importance. To the feudal and monopolizing system in church and state, monopoly in land, monopoly in commerce, and other monopolies, he ascribes all the miseries among the productive working classes; and holds that with-

out radical reforms those miseries will be permanent. His remedy is entire freedom in everything on which the industry of man can be exercised. That the author is fierce against perverted aristocracies may readily be imagined, and on the other hand as favourable to equality and republicanism—holding America to be a constitutional model in this respect. The law of primogeniture is denounced as incompatible with popular rights and national prosperity; and the operation of the practice of France is defended against McCulloch and other impugnors. Then the author gets deep into the mysteries of God's attributes, and the origin of evil. To the effects of religious confession he attributes the debasing and subjugating the minds of men, and corrupting those of women; and there is a good deal of discussion about the Jesuits, and an assassinating influence laid to their charge; and especially their employment in undermining the morals and religion of the people of Great Britain and Ireland. A purer spirit of Christianity, a communion between man and his Maker, is strenuously enforced; and the Romish faith and rites consequently repudiated as unholy, blasphemous, and disastrous for mankind. Finally, General O'Connor argues no good destiny for our United Kingdom, and especially anathematizes the late Daniel O'Connell as a wretched tool, a Jesuit in disguise, and one of the worst enemies to his country; and the priests with whom he acted as Machiavellians of the most infamous description, whose lives are devoted to keeping the people "in the most beastly ignorance, superstition, filth, and sloth, that they may be the more than beastly instruments of their wealth and power."

Such is an outline of the principal topics in the old Irish patriot's three massive volumes; and that we have nothing to say upon any of them, is exactly what we presume the readers of the *Literary Gazette* would anticipate from our course of thirty-one years.

*Continental Travel; with an Appendix on the Influence of Climate, &c.* By Edwin Lee. 8vo. Adams.

MR. LEE, unlike Mr. Atkinson in our last number, is much in favour of "Change of Air" and travelling, for the remedy of diseases. Non nostrum tantas componere lites; but it is rather unpropitious time, at present, to seek the relief or succour of continental travel. In France no change for the better can be found, in Italy there is no place of repose for the invalid, in Spain the Nervæz is most injurious for the nervous system, in Switzerland the constitution is likely to be ruined, and in Germany there is so universal a diffusion of hot water that the particular baths must have lost all their efficacy. They are not as they were in Dr. Granville's day. Mr. Lee, however, goes pretty much at large over Europe, and may serve as a medical guide when other hand books are again called into use for foreign travels. At Leipsic, its original head-quarters, and in Germany and France, he assures us that homœopathy (which he denounces as the cream of quackery) is nearly defunct; heard of nowhere but Vienna.

*The Demerara Martyr.* Memoirs of the Rev. John Smith, Missionary to Demerara. By E. A. Wallbridge, &c. 8vo. pp. 274. Gilpin.

THE often conflicting relations between laic colonists and holy missionaries, who, considering them wronged, espouse the cause of natives or slaves, are in the instance here before us strongly exemplified. It is a long case, however, and rests on documents and statements we can neither examine nor verify; and the question is, besides, quite out of our line. We can therefore only say that the difference appears to have been one of a severe character, and such as we always grieve to witness religious zeal engaged in. A true missionary braving all dangers, and death itself, in a cause which his conscience and feelings tell him is right, and for his Maker's service, is one of the most perfect characters the human mind can conceive; and when there is a falling off, and a meddling with worldly concerns not within the province of sanctified labours, the greater is the evil, and the more serious the source of regret.

## ARTS AND SCIENCES.

ON Tuesday, the various sections made an effort to get through the business set down for them; and some had not much to do, whilst two threw over their remnants to encroach on the following day, when, however, a majority of the members had departed.

## TUESDAY.

## SECTION A.—(Mathematical and Physical Science.)

1. Phillips (Professor), report of the further progress of astronomical researches.
  2. Ronalds (Mr. F.), report of progress; and presentation of the fifth volume of Kew observations and experiments.
  3. Ball (Mr. J.), on rendering the electrical telegraph subservient to meteorological research.
  4. Lloyd (Dr.), on the mean results of observations.
  5. Stanley (Captain), on the velocity and height of waves, according to observations. To be communicated by Dr. Whewell.
  6. Brewster (Sir D.), on the compensations of impressions moving over the retina, as seen in railway travelling.
  7. Harris (Sir W. B.), on a general law of electrical discharge.
  8. Thomson (Professor), on the theory of electro-magnetic induction.
  9. Thomson (Professor), on the equilibrium of magnetic or diamagnetic bodies under the influence of the terrestrial magnetic force.
  10. Joule (Mr. J. F.), on the mechanical equivalent of heat.
  11. Hooker (Dr.), on an aurora in India. Communicated by Professor Wheatstone.
  12. Robinson (Rev. Dr.), on shooting stars, seen on the night of August 10th.
  13. Challis (Professor), on a new instrument for observing luminous meteors.
  14. Wheatstone (Professor), on determining the true solar time, by means of the plane of polarization of the sky at the North Pole.
  15. Maury (Lieutenant, U. S.), observations accompanying wind and current charts of the North Atlantic.
  16. Stokes (Mr. G. G.), on the resistance of the air to pendulums.
1. Professor Phillips, since his report "On Anemometry," to the Southampton meeting, has conducted an enormous number of experiments to establish the rate of evaporation in relation to the velocity of the wind, and he expects that he shall be able to prepare a small instrument to measure the evaporation of water to a great nicety, and hence ascertain accurately even very low velocities. An anomaly which he hoped to overcome, seemed to be the only hindrance. This expectation, and the value of an instrument upon which dependence could be placed, extending, as it were, and perfecting the large anemometers, were generally acknowledged.
2. A retrospect of five years' proceedings at the Kew observatory was not at all required to prove a constant desire on the part of Mr. Ronalds to promote the views of the British Association. The printed epitome, however, of the electro-meteorological and magnetic observations, experiments, &c. made at Kew, widely circulated, will only increase the regret generally felt at the contemplated abandonment of the "Home of the British Association."
3. Mr. Ball contemplated the electric telegraph as a weather prophet, receiving or conveying intimations of a disturbance of equilibrium at any given point; and hence, in connexion with transmitted records of the physical condition of the atmosphere at numerous distant stations, of predicting the state of the weather.
- Dr. Lloyd stated that Dr. Lamont, at Munich, had already applied the electric telegraph to this purpose, and had successfully predicted storms and the points of their approach.
4. Set forth the deep concern meteorologists felt in the principles of reduction, and explained a mode of obtaining the mean results of daily observations, or of a series of observations; as, for instance, for magnetic declination, by taking the mean of any three equidistant observed values; and determined the best hours for record when limited observations only were obtainable—namely 6 A.M., 2 P.M., and 10 P.M., which accord with the maxima and minima of the daily range of the above elements. The same hours also for temperature, vapour, and gaseous pressure, but adding the hours 10 A.M. and 6 P.M. for magnetic intensity and inclination.
5. Explained the satisfactory results of numerous

experiments made by Captain Stanley, on board H.M.S. "Rattlesnake," to determine the speed and height of waves. The method he adopted for the former was rearing a spar astern, until the spar and ship's stern were on the crests of two waves, and then noting the time in which the crest of the passing wave, leaving the spar, arrived at the ship; and for the latter, Mrs. Somerville's proposed plan, ascending the rigging when the ship is in the trough of the sea, until vision runs level on the top of the waves. The observations were made chiefly in April last year, running into May. The mean results gave a speed of 27 knots an hour, 24, 22, 20, &c.

Mr. S. Russell had received a similar letter from Captain Stanley, had discussed the observations, and found them confirm previous observations. He stated how desirable it was to obtain as many results as possible, and to make it known how easily observations can be made, although favourable conditions of the sea and winds were rare.

Lord Adare suggested the west coast of Ireland as being well suited for observations, where the passing wave may be traced to a considerable distance, and the height of the wave ascertained from positions in the rocks; this duty, too, he said, may be well entrusted to the coast guard. Few persons, he added, without having witnessed, could realize the magnificent effect of the waves there rolling in from the west; the height of the breakers thrown up in an instant he had himself, by the above method, observed to be forty feet, and, in some instances, even 150 feet.

6. A new fact of observation by obstructing vision with a screen, excepting in one point, and by sudden removal of the screen, seeing from a railway carriage, an effect similar to that described by Sir D. Brewster at the Cambridge Meeting. This new fact he explained physiologically, attributing it to bringing into action a new point of the retina not affected or disturbed by previous impressions, and therefore seeing lines of compensation.

7. The general law deduced by Sir W. Harris was, that the force exerted in any discharge was inversely as the quantity, and the same for any distance.

10. Since the last meeting of the Association, Mr. Joule has extended his experiments on the heat evolved by the agitation or friction of fluids. The result arrived at, after a great number of experiments, was, that the expenditure of a mechanical force, capable of raising 771 lbs. to the height of one foot, invariably produced the quantity of heat requisite to increase the temperature of a lb. of water one degree. Mr. Joule applied this result in calculating the specific heat of the gases. Assuming the existence of a rotary, or other mechanical agitation of the particles of elastic fluids, in order to account for their pressure, he showed that the velocity of the particles of hydrogen must be 6225 feet per second, a velocity which places the specific heat of that gas at 1.5157, calling the specific heat of water unity. The specific heat of the gases will, according to this theory, be in the inverse proportion of their specific gravities.

11. Dr. Hooker described two auroræ, the best developed seen on the 14th February last: arch well-defined, 12 degrees broad; altitude, 20 degrees; light pale, but bright: beams crowded, lance-shaped, splitting, &c. &c.

14. After a statement of the general facts which have been hitherto recognised respecting the polarization of the light reflected from the atmosphere, as investigated by Arago, Quetelet, Babinet, Brewster, &c., the author proceeded to establish a new conclusion to which he had arrived—viz., that at the north pole of the sky, the changes of the plane of polarization followed with the same regularity as the shadow of the gnomon of an equatorial sun-dial; the plane of polarization revolving round the pole in the opposite direction to that of the hand of a watch. There exists, therefore, at this point of the heavens a means of determining the true or apparent solar time with the same accuracy as by the most perfect sun dial; but as the effects of polarization are unperceivable by the unassisted eye, it is necessary to adapt polarizing apparatus in such manner that the plane

of polarization may be ascertained at any instant during the day, and the corresponding time indicated. To the instrument which effects these objects the author has given the name of the polar clock or dial. Before we proceed to give a concise description of this instrument, it will be essential to refer to one of the means by which the plane of polarization of a ray of light may be determined; if a thin film of a doubly refracting crystal be fixed to a polarizer, a Nicol's prism, for instance, so that either of the lines which bisect the principal sections of the former coincides with the polarizing plane of the latter, and if this combination be directed towards a ray of light either completely or partially polarized, the colour of the film will appear most intense when the plane of polarization of the ray coincides with, or is perpendicular to, the plane of polarization of the polarizer, and entirely disappears when these planes are at right angles to each other.

The instrument is thus constructed. At the extremity of a vertical pillar is fixed, within a brass ring, a glass disc, so inclined to the horizon that its plane is perpendicular to the polar axis. On the lower half of this disc is a graduated semicircle, divided into twelve parts, each of which is again subdivided, and against the principal divisions the hours of the day are marked, the central one corresponding with noon. Within this fixed brass ring the broad end of a conical tube is so fitted that it freely moves round its own axis; this broad end is closed by another glass disc, at the centre of which is a small star formed of thin films of selenite, exhibiting by polarized light strongly contrasting colours, and a hand is painted in such a position as to be a prolongation of one of the principal sections of the crystalline films; at the small end of this conical tube a Nicol's prism is fixed; so that in polarizing plane shall coincide with the line that bisects the principal sections of the crystalline film. The instrument being fixed so that the axis of the tube coincides with the polar axis of the earth, and the eye of the observer placed to the Nicol's prism, he will observe that the selenite star will, in general, be richly coloured; but as he turns the tube on its axis, the colours will vary in intensity, and in two positions will entirely disappear. In one of these positions a small circular disc in the centre of the star will be of a certain colour—red, for instance—while in the other position it will be its complementary colour. The rule to ascertain the time by the instrument is this: The tube must be turned round by the hand of the observer until the coloured star disappears, while the disc in the centre remains red, and the hand will then point accurately to the hour.

The polar clock being constantly directed to the same point of the sky, it can be applied in almost every locality; whereas, in order that the indication of a sun-dial may be observed during the whole day, no obstacle must exist at any time between the dial and the places of the sun. Another advantage it possesses is that it continues to indicate the time after sunset and before sunrise; in fact, so long as any rays of the sun are reflected from the atmosphere.

The author concluded his communication with the description of several other contrivances for effecting the same object. Among them was one which showed the time immediately without any part of the apparatus requiring to be moved, and which might be seen by a number of persons at once.

## SECTION B.—(Chemical Science, including its application to Agriculture and the Arts.)

1. Sacc (Professor F.), on the chemical and physiological phenomena exhibited by fowls fed on barley. Communicated by Captain Boscawen Hobson.
2. Percy (Dr.), experiments concerning the extraction of silver from some of its ores by the wet way; with a notice of a process as a substitute for that of lixiviation.
3. Higgen (Mr. Jas.), on the colouring matters of madder.
4. Smith (Dr.), report on the air and water of towns.
5. Rogers (Professor R. E.) and Rogers (W. B.), on a new process for analysing graphite, natural and artificial.
6. Rogers (Professor R. E.), oxidation of the diamond in the liquid way.
7. Rogers (Professor R. E.), on the absorption of carbonic acid by sulphuric acid.
8. Moffa (Dr.), on the existence of ozone in the atmosphere.



9. Goodman (Mr. J.), researches on the analogy of the existence of forces—light, heat, electricity, magnetism, and gravitation.

2 gives promise of a successful and economical separation of the precious metals from their ores. The communication is one of the selected for publication at length in the Transactions.

3. Mr. Higgen's various analyses of madder have led him to the same conclusion as Dr. Schunck—namely, that there are three colouring matters in madder capable of isolation—xanthin, a yellow; an orange, which Dr. Schunck names rubracin; and alizarin, a red. To this latter alone, the Doctor ascribes all the tinctorial power of madder, an opinion from which Mr. Higgen differs, and the object of his paper was to show that, under proper circumstances, the other two colouring matters have a great influence on its dyeing properties. He believes the difference in their results to have arisen from the use in the one case of boiling water to extract the principles, and in the other of cold or tepid water, the temperature having a remarkable influence on the products of extraction. The paper then described the isolated colouring matters, and proceeded to show that the action of cold or tepid water on madder is attended with peculiar effects, and that by proper treatment all the xanthin and the greatest part of the rubracin may be made to disappear, the change being accompanied by an increase in the tinctorial power; and since, of the three colouring matters, alizarin only can be made to dye colours, proving that alizarin and rubracin result from changes in the xanthin. To dye well with madder, the process must be begun at a low temperature and the heat gradually raised; Mr. Higgen's rationale of the operation is, that the xanthin, on putting the madder into water, immediately begins to decompose, becoming rubracin; this, in its turn, becomes alizarin, and then the combination between it and the mordanted cloth takes place; the dyeing being begun by the alizarin already existing in the madder, and continued by the quantity continually formed; the slow heating of the liquor is very favourable to the change taking place; generally the temperature is about 180° at the end of the first hour; long before that hour, however, the xanthin has become rubracin, and part of this alizarin, the remainder of the time being occupied in completing the change. The alizarin being removed from solution as fast as formed, has probably some influence in accelerating the change of rubracin. This will be the final action, and when the mordants are saturated, there will always be a small residue of rubracin, which has a tendency to dull the shades, and hence the superior brightness of those dyed with garancine (a compound of alizarin and a brown matter), which contains no rubracin.

The fermentation and improvement of madder when kept in the cask is explained by supposing the xanthin to be gradually changed into alizarin. This is particularly noticed in Dutch madder, which abounds in xanthin. Mr. Higgen says also that madder contains a varying quantity of sugar of an uncrystallizable species, which may be isolated; and he does not think that the resins found by Dr. Schunck are originally contained in madder, but formed during the boiling. Mr. Higgen's experiments on normal madder, as well as those which he had made on that preparation of it called garancine, were detailed, and he considers himself warranted in coming to the conclusion that all colouring matter in madder springs primarily from xanthin; an opinion held by Decaisne, who observed that fresh madder roots contained only a deep yellow fluid, and acquired a granular appearance only during the process of dyeing.

4. Dr. Smith's conclusions are:—1st, that the pollution of air in crowded rooms is really owing to organic matter, not merely carbonic acid. 2nd, that this may be collected from the lungs, or breath, and from crowded rooms, indifferently. 3rd, that it is capable of decomposition, and becomes attached to bodies in an apartment, where it probably decomposes, especially when moisture assists it. 4th, that this matter has a strong animal smell, first of perspi-

ration, and when burnt, of compounds of protein, and that its power of supporting the life of animals proves it to contain the usual elements of organized life. 5th, organic matter of dew contains less nitrogen. 6th, the slightly alkaline state into which soil is put at certain periods of the year, give it a facility for emitting vapours, whilst all vapours of water from organic matter contain organic matter. 7th, water purifies itself from organic matter in various ways; by forming nitrates, as in sewers, and in the neighbourhood of cesspools and churchyards, under streets, in manured grounds, and other repositories of animal matter. 8th, this may be done in a laboratory, on a small scale where animal matter, by means of a sand filter, may be converted into nitric acid. 9th, in the larger operations of nature, the carbon is also oxidized. 10th, sulphuretted hydrogen is also oxidized on a small scale, by a filter, being converted into sulphuric acid. 11th, a filter, therefore, as an oxidizing agent, acts in proportion to its cubic contents. 12th, water falling on the surface of the ground gets rapidly saturated with organic matter, but in passing through the soil gets filtered, and the matter oxidized, making the porous soil and the air the great agents of purification in a country, whilst drainage will act by removing organic matter as well as water. 13th, all wells near houses and all wells in towns contain nitrates, which may be easily traced to sewers or accumulations and outlets of refuse. 14th, the alkaline salts of towns increase the rapidness of water. They abound in river water which receives the refuse of towns, and cannot be filtered out. The difference between the hardness of water and the amount of matter per gallon gives a measure of impurity, as it indicates other than the lime salts, whilst the lime salts affect least the taste of the water. 15th, a slight acidity removes rapidness, and produces a perception of coolness in the mouth. 16th, water can never stand long with advantage, unless on a very large scale, and should be used when collected, or as soon as filtered.

5. The new process is founded on the fact that a mixture of bi-chromate of potassa and sulphuric acid, when applied in great excess to very minutely divided graphite, converts the carbon rapidly and completely into carbonic acid. The fact of such a reaction was noticed by the Messrs. Rogers more than two years ago, but the details of the present process were not matured until the winter of 1847, since when they have used it in a number of instances for determining the carbon of graphite, and always with constant and satisfactory results. After describing the apparatus, and the necessary arrangements for arresting moisture and carbonic acid, it was stated that to insure a prompt and complete result, the graphite, freed from any adhering carbonates or organic matter by digestion in dilute sulphuric acid and subsequent ignition, must be brought to the most minute division by grinding it with small fragments of granular quartz, adding this substance in successive portions during the grinding, until it amounts to some 30 times the weight of the graphite itself. With a retort of about 15 cubic inches, 6 grains of graphite, as the most convenient quality to operate with, must be mixed with 500 grains of powdered bi-chromate of potassa, and 1 c.i. of water added in the retort; then pour slowly upon the mass 5 c.i. of sulphuric acid of the common density, taking care to mingle the ingredients by gentle agitation as the acid is added. A moderate lamp heat soon incites brisk reaction, which is afterwards to be regulated by withdrawing or renewing the heat. At the close of the operation, a volume of air, equal to two or three times the capacity of the retort, is drawn through the apparatus. The mean result for native graphite corresponded in 100 grains to carbon 94.56, and for artificial graphite to 75.4,—closely agreeing with the result of weighed specimens of graphite carefully burnt to ash in a current of oxygen gas. The Messrs. Rogers have made numerous experiments to test the applicability of this process for determining the carbon of coals. In the driest varieties of anthracite, the results presented a good degree of uniformity in repeated trials with the same specimen; but whenever the coal contains a volatile

compound of carbon, this is, because of the high temperature of the reaction, in greater or less part evolved without oxidation. In the case of perfectly dry coke, the process gives uniform and accurate results.

6. The diamond also can be converted into carbonic acid in the liquid way, and at a moderate heat, by the reaction of a mixture of bi-chromate of potassa and sulphuric acid, in other words, by the oxidizing power of chromic acid. This fact, although suggested in the progress of the Messrs. Rogers' experiments on graphite, was not unequivocally ascertained until lately. The method of proceeding is much the same as in the oxidation of graphite, but the progress of the oxidation is a great deal slower. The chief point, however, of interest on the subject is the fact, which the Messrs. Rogers believe has now for the first time been shown, that diamond is capable of being oxidized in the liquid way, and at a comparatively moderate temperature, varying between 350 and 450 degrees.

7. The Messrs. Rogers' experiments, published in the January number of the *American Journal of Science*, showed that sulphuric acid of the common density is capable, under ordinary pressure, of absorbing about 94 per cent. of its volume of dry carbonic acid gas. The present communication consisted of notes of a series of further experiments confirming the fact, which however will appear with the accurate quantitative results in the forthcoming part of the above journal.

8. The results of a series of experiments to prove the existence of ozone in the atmosphere, and to establish that like chlorine it is a local irritant, and that its prevalence may be attributed "to bronchitis" and "affections of the mucous membranes of the respiratory canals." &c. &c. To the action of ozone, moreover, and "over stimulating," Dr. Moffat attributes the potato disease. His remedy is to weaken or remove the source of the decomposing agent of the atmosphere—the generator of the ozone, by lessening the number of "points" which give off electricity—thinning the foliage of the potato by cutting off the lower branches entirely, and removing one-third and one-fifth of the upper twigs. The pruning should be done in the fifth, sixth, and seventh week after setting the tubers, and as soon as the flower bud begins to appear, let it be lopped off also. The flower being the laboratory in which the germ of the future plant is manufactured, must necessarily be possessed of a high state of vitality and the seat of important chemical action, and consequently a generator of electricity—a source of ozone; in short, an exhauster of vitality of the tubers, and the origin of a poison to the whole plant—the removal of which cannot be otherwise than beneficial to the health of the vegetable!!

#### SECTION C.—Geology and Physical Geography.

1. Rogers (Prof.), on the geology of Pennsylvania.
2. Werner (Mr. Fred., of Berlin), on the sources of the White Nile.—Communicated by Sir R. Schomburgk.
3. Beke (Dr.), on the sources of the Nile in the Mountains of the Moon.
4. Petermann (Mr. A.), on a new hydrographic map of the British Isles.
5. Bonomi (Mr. F.), a map of Egypt, as in the time of Antoninus Pius.
6. Carpenter (Dr. Wm.), on marginopora and allied structures.
7. Bunbury (Mr. Chas. J. F., For. Sec. Geol. Soc.), on the occurrence in the tarentaise of certain species of fossil ferns of the carboniferous period, associated in the same bed with bellerophonites.—Communicated by Leonard Horner, Esq., F.R.S.
8. Deabury (Dr.), some remarks in reply to Mr. Hopkins's objections to the chemical theory of volcanos.
9. Williams (Rev. D.), on the geology of Lundy Island.
10. Cunningham (Mr. Wm.), on a peculiarity in the structure of one of the fossil sponges of the chalk (*Chonites konigi*) Mantell.

\* These two Nos. 2 and 3, so fully discuss the disputed geographical questions on the sources of the Nile, that we have had accurate abstracts of them made, and now find that they occupy rather more space than we can afford to Science in this Gazette, in which we have thought it better to finish the report of the Swanses meeting. The Nile will, accordingly, occupy a couple of our pages next week.

1. Professor Rogers gave a very comprehensive and masterly view of the geology of Pennsylvania, illustrated by large geologically coloured maps of North America. Taking the great Appalachian chain for his basis, he held that there must formerly have existed a vast continent where now rolled the Atlantic Ocean. He traced the outspread of the mountain series of rocks towards the far west, where the strata disappeared, and prodigious sedimentary deposits had accumulated to an immense depth. The Professor then explained at length his earthquake theory of the foldings of the Appalachian strata, by undulations of the flexible crust of the earth, resting on a fluid underneath, becoming fixed by the injection of lava where ruptures took place. The three great coal fields of America were next described—viz., that of

1. The Ohio, 740 miles long and 180 in width; an area of 60,000 square miles.
2. The Illinois, 60,000 square miles.
3. The Michigan, 15,000 square miles.

He also noticed the anthracite in Pennsylvania and Virginia, in all the proportions of bituminous matter diminishing in the direction from west to east. The working of these vast coal-fields is increasing at a rapid rate, as the manufacturers apply themselves to the smelting of iron ore and other products hitherto imported from other countries. The Professor finally noticed M. Agassiz's discovery, that a drift deposit was spread all over the United States, interspersed with boulders and masses of angular rock, and striated in the direction of from north to south. These remarkable phenomena can be traced from many miles, from twenty to fifty, and are strewn over hill and valley, indicating the flow of a great body of water, covering the whole of the present continent.

4. Mr. Petermann's map exhibited, with their names, 1550 rivers, 480 lakes, and 40 waterfalls, besides canals and great drainage courses. It appeared to be very ably constructed, and is intended for publication.

5. Dr. Daubeny offered some remarks in reply to an objection to the chemical theory of volcanoes, propounded by Mr. Hopkins in his report on earthquakes, &c., contained in the last volume of the Transactions of the British Association. This objection was, that if, according to the theory alluded to, sea water found access to the focus of a volcano through fissures in the rocks subjacent to the bed of the sea, lava ought to ascend through the same channels rather than from a crater in the nearest contiguous land. This objection, according to Mr. Hopkins, originated with Monsieur Gay Lussac, who, however, only suggests it as a difficulty which philosophers should inquire into, not as an objection to the fact that sea water is constantly present during the continuance of volcanic operations, without which the copious emission of steam, muriatic salt, and common salt from the crater, would be inexplicable. Dr. Daubeny therefore contended that the difficulty stated, whether real or imaginary, did not affect the chemical theory, which, assuming it to be an ascertained fact that water finds access to the focus of a volcano, speculates as to the consequences that might arise from its action upon bodies that may there be supposed to exist. Nevertheless, although the solution of this difficulty does not, properly speaking, fall within the province of the chemist, it may be suggested that the immense pressure, increased by a deep incumbent ocean, coupled with the resistance of a considerable thickness of solid rock intervening between the bottom of the ocean and the focus of the volcanic operations, might oppose a sufficient obstacle to the ascent of lava to cause lateral fissures, through which the melted matter might find an easier vent in some part of the contiguous land. It is true that fissures of some sort must be supposed to have existed in the rock which the sea water percolated; but these may readily be supposed to have been stopped up, at the commencement of a volcanic crisis, by injections of lava, which cooling in its progress upwards, would create an impediment to the further egress of melted matter by the same channels. At any rate, by whatever means the emission of lava is prevented, the fact remains, that water is actually

present, and the consequences of this fact are all that the chemist has to concern himself in explaining.

#### SECTION D.—(Zoology and Botany.)

1. Babington (Mr. C. C.), on recent additions made to the British flora.
2. Strickland (Mr. H. E.), report of the committee on the vitality of seeds.
3. Forbes (Prof. E.), report of dredging committee.
4. Spratt, (Lieut. R.N.), on the influence of temperature upon the distribution of the fauna of the Ægean Sea.
5. Forbes (Prof. E.), and McAndrew (Prof.), results of an examination of Milford Haven with the dredge.
6. Owen (Prof.), note on the value of the origins of the nerves of a part in the determination of its homologies.
7. Owen (Prof.), on the os humero-scapulare of the ornithorhynchus paradoxus.
8. Owen (Prof.), on the relations of phenomena of development to zoological classification.
9. Williams (Dr. Thomas), on the physical conditions regulating the vertical distribution of animals in the atmosphere and the sea.

1. Mr. Babington exhibited drawings of twelve or fourteen new plants recently added to the British flora.

2. Mr. Strickland's report stated the progress made in the experiments on the vitality of seeds in the garden at Oxford. Some entirely failed in three years; but it would require ten to reduce the whole to generalization. The scientific gentlemen present appeared to scout the fact of the reproduction of Egyptian wheat from grains found in mummy cases, and mentioned a case or two in which Arab imposition had been detected in this respect. This, however, does not seem sufficient to overthrow the direct proof to the contrary afforded by the grain discovered by Mr. Pettigrew, and which in the second year acquired more of, and in the third, the perfect form in the ear of the Egyptian corn. The spontaneous growth of white clover almost everywhere that a deep alluvial soil is excavated, and the appearance of oak and birch-trees on the heath-clad mountains of Scotland if well limed, where not a tree has been seen since the days of the Romans among Caledonian forests, were adduced to demonstrate the extraordinary length of time which seeds could be in the earth without germinating.

Mr. Phillips showed some curious effects in the colours on the Macartney rose, and inferred from the appearances, that they depended on the way in which the petals were exposed to the light by the opening of the calyx.

4. Lieutenant Spratt's paper opened up the entire question of the distribution of animal and vegetable life, and the laws which governed it; whether of temperature, atmospheric pressure, light, or other causes, and was ably discussed by Professor E. Forbes, Sir E. Belcher, Mr. Ball, Dr. Carpenter, and Dr. Williams. Lieutenant Spratt, from experiments made during the summer, when he was engaged in surveying the Ægean Sea, had come to the conclusion that temperature had the greatest influence on the distribution of marine production. He subdivided (according to Professor Forbes's theory) the sea into zones, or regions, of so many fathoms in depth, and gave the different temperature of each, to their being acclimated to which he ascribed their powers of migration, and did not consider the density of depths to affect them so materially. The lowest at which he had procured animal life was 390 fathoms; but he was of opinion that other creatures, such as the mellipore, might be found much lower still. Professor Forbes remarked that Lieutenant Spratt's valuable observations entirely coincided with the views he had propounded at Cambridge, and with the researches since brought to light by the dredge.

6. The author stated that he was induced to offer a few words on this subject, as he found that the supply of the arms, in the human subject, by nerves chiefly derived from the lower cervical pairs, had formed a difficulty to some in accepting his determination of their general homology, as the "diverging appendages of the costal arch of the occipital vertebra." He observed that, since the determination of a general homology follows, and is dependent on, that of the special homology of parts, it was requisite to inquire how far the preliminary and minor conclusions were affected by that condition of the nerves,

which had been supposed to invalidate the major or more general proposition cited.

The author assumed it would be granted that the arms of man were homologous with the fore-limbs of beasts, the wings of birds, and the pectoral fins of fishes. Taking the wing of the bird, e. g. the common fowl, its nerves were derived from the 15th and 16th pairs of nerves, counting from the last of the brain; whilst its special homologue, the arm of man, received its nerves from the 6th, 6th, 7th and 8th pairs.

But, referring to a closer case of special homology, Professor Owen stated that the wing of the swan derived its nerves from different pairs of nerves from those that supplied the wings of the swift. No one could deny these to be the same, or "homologous" parts; yet the distance or interval between the place of origin of the wing nerves of the swift and those of the swan, is greater than that which intervenes between the last cerebral nerve and those cervical ones supplying the human arms, and the number of vertebrae and nerve-pairs intervening was also far greater. The difference in the origin of nerves of homologous parts was more strikingly manifested in the vertebral fins of fishes, which present such great varieties of relative position to the head, as to afford the ichthyologist characters of his orders, *abdominales, thoracici, and jugulares*. Now, if these differences in the nerves, and their place of origin, do not invalidate the conclusions of "special homology" arrived at by the consideration of other circumstances, which really influence such conclusions, Professor Owen contended that they were equally valueless as opposed to the determination of general homologies. He briefly noticed the facts confirmatory of the ideas of Aristotle and Cuvier, of the special homology of the arms of man with the pectoral fins of fish, and summed up the arguments that had led him, in his "Report on the Archetype," to view the attachment of the scapular arch in fishes to the occiput as its normal one, in relation to the archetype, and to determine the essential nature of that arch, as the costal one of the occipital vertebrae, and the fins as the radiated appendages of such costal arch.

7. Professor Owen referred to the discovery, by Prof. Nitzsch, of Halle, of a small accessory bone, articulated to the coracoid, scapula, and humerus, in certain birds, and to which Meckel had given the name of "schulterkapsel-beine," the homologue of which had not hitherto, so far as he knew, been detected in any other class of vertebrate. He had, however, discovered an ossicle attached to the head of the humerus, and to the capsule of the shoulder-joint, of the *ornithorhynchus paradoxus*. It was distinct from the proximal epiphysis forming the head of the bone, and from that which caps the great berosity in the young animal, and it equally existed in the full-grown specimens, and also, was more adherent to the humerus, in the *echidna*. It appears to have escaped the attention of Meckel, not having been noticed in the text, or represented in the plates of that anatomist's magnificent monography on the *Ornithorhynchus*. Professor Owen thought the fact of the existence of the os humero-capsulare in the *Ornithorhynchus*—although a minute trait of its resemblance to birds—interesting, as an additional instance of the affinities of the paradoxical mammals to the oviparous vertebrates.

9. Dr. Williams, from experiments with an air-pump, and deductions from the effects on the vision in looking through a long tube which he had filled with water, contended that the influence of atmospheric pressure was much greater than had been allowed, and also that light did not pass through water to the extent that was supposed, so as to possess any considerable agency on the Fauna and Flora of the sea. Sir E. Belcher showed the mistake on which the latter argument in particular was founded. The sea was not enclosed in a tube, and fish lived far below the depth Dr. Williams had thought possible. He

\* This communication was, in subject and treatment, similar to the Doctor's lecture at the Royal Institution in Albemarle-street, (see *Literary Gazette*, No. 1629.)



had himself seen the sea bottom in clear water, 33 fathoms down, and from the depth of 150 fathoms had brought up living creatures, which continued alive and well in the shallow waters at the top. Professor Forbes confirmed this, and said he had brought a creature from 230 fathoms in the Ægean Sea, which lived quite well in water on the decks of the vessel. The colour of plants at these great depths proved the penetration and influence of light. He also alluded to the Gulf stream, where the fauna was not intermediate, but passed at once from a southern to an arctic character. Mr. Ball and Dr. Carpenter both spoke on the adaptation of animals to pressure, and the latter instanced the condor and whale as passing with extraordinary rapidity through space, which increased the pressure to an enormous extent.

The following abstract of Professor Owen's paper, *On the communications between the tympanum and palate in the Crocodiles*, was omitted in our report of Monday's proceedings.—Professor Owen referred to the discrepancy in the opinions of anatomists relative to the small perforation in the basi-sphenoid behind the posterior aperture of the nostrils in the crocodiles. It had been called "trou des artères" by Cuvier, in the "Ossemens Fossiles," and was described in the "Leçons d'Anat. Comp." t. ii, 1837, as "leading to a canal which bifurcates as it ascends; one traversing the basi-sphenoid, the other the basi-occipital, to terminate in the ear chamber;" but what passes through it, or where the basi-sphenoidal branch terminated, was not stated. Professor Brown had contended that this perforation was the posterior aperture of the nostrils in fossil crocodiles, and had cited a letter from M. De Blainville confirmatory of this view. Professor Owen stated that both the basi-occipital and basi-sphenoidal divisions of the bony canal bifurcated to the right and left, in order to communicate with the tympanic cavities, and that the basi-occipital bifurcations communicate with the beginning of two other canals, extending from the tympanic cavities to two membranous canals converging to terminate at the common orifice of the median and didymotomously branched osseous canal; that all these canals conveyed air from the back of the mouth to the tympanic cavities, and all opened upon the palate by the common median orifice in the soft palate, corresponding to the median foramen, behind the posterior nares, and were, therefore, to be regarded as a complex condition of the eustachian tubes. The carotid canals commence by foramina, situated one in each exoccipital bone external to the base of the condyle, and open, also, into the tympanic cavities, through which the arteries pass to enter bony canals leading from those cavities to the sella tunica.

#### Sub-Section of Ethnology.

1. Tutschek (Dr.), on certain languages of Sennar and Kerdan.
2. Skene (Mr.), on the Turks and Greeks.
3. Retzius (Prof.), measurements of a Burgundian and Kirgis Skull.
4. Phillips (Prof.), Ethnographical note on the inhabitants of part of Leicestershire.
5. Latham (Dr. R. G.), report on the present state and recent progress of ethnographical philology. Part II. America and Polynesia.
6. Hogg (Mr. J.), on a quantity of human bones discovered in a field near Billingham, in the county of Durham.
7. In exhibiting some human bones, which were picked out of a quantity lately discovered in a tillage field, called *Newton Heads*, distant about half a mile from Billingham, the author adverted, in the first place, to some that had been found in Yorkshire, and detailed in a paper read before the Ethnological Society of London in June last, but those being all interred with the feet to the east, showed that they most probably belonged to early Christians. Whereas the bones now described do not seem to have been buried after any regular method of sepulture; and indeed they were, here and there, interspersed with a few bones of the ox and horse. The teeth being remarkably worn down, led to the belief that they were those of a very early and primitive people.

Mr. J. Hogg inclined to account for the appearance of these bones in the field, in which they had been dug up, to a great battle that had been fought, ac-

cording to *Symeon Dunelmensis*, near Billingham (about A.D. 800), between *Ardulf*, King of Northumbria and the conspirator *Wada*, rather than to any subsequent fight by the invading Danes or other hostile tribe, or to any skirmish between the inhabitants and a mere party of marauders. The dryness and sandy nature of the subsoil would keep the bones in excellent preservation for many ages.

The author, in conclusion, stated that no peculiarity of formation was discernible in the bones of the skull.

This communication was of much interest to the physiologist, and more particularly to the British ethnologist, who pays regard to the history of man in his own country.

#### SECTION F.—(Statistics.)

1. Finch (Dr. Cuthbert), exhibition of Calcutta.
2. Petermann (Herr.), on the Distribution of the Population of Great Britain and Ireland.
3. Williams (Mr. Cadogan), on the purchase of deferred annuities.

#### SECTION G.—(Mechanics.)

1. Ashman (Mr. J.), exhibition of an artificial leg of improved construction.
2. Wishaw (Mr. F.), on the "uniformity of time," and other telegraphs.
3. Wishaw (Mr. F.), on the multitubular sub-way pipes and panorgous joint.
4. Ward (Mr. W. S.), on a new mechanical arrangement for communicating signals and working breaks on railways.
5. Strickland (Mr. H. E.), on anastatic printing, and its various applications.

1. Mr. Ashman's artificial leg of vulcanized Indian-rubber is one of the most ingenious and serviceable substitutes for the real leg that ever was invented. The famous burgomaster's limb of Amsterdam could not be compared to it.

#### WEDNESDAY.

#### SECTION C.—(Geology and Physical Geography.)

1. Oldham (Professor), on the geology of part of the county of Wicklow.
2. Millward (Mr. A.), an attempt to illustrate the origin of "dirt bands" on glaciers.
3. Millward (Mr. A.), account of an extensive mud-slide in the island of Malta.
4. Buckland (Dr.), on the evidence of the former existence of glaciers in the valleys that descend from the mountain chain of Snowdon.
5. Morgan (Mr. W.), on some bones found in the bed of the Tawe.
6. Wishaw (Mr. F.), improvements in the construction of transparent and translucent models for geological purposes.
7. Ibbotson (Captain L. L. Boscawen), on some railway cuttings near Bangor.

1. 4. These communications were both illustrated by maps; the one was a detailed description of the peculiarities of the geological formations of Wicklow, showing the positions of the granite, slate, sandstone, and other strata; and pointing out the metalliferous mines abounding in the upper series, and not in the older sedimentary rocks. The deposits appear to occur in faults as at Glenmalur. The other an account of the best localities for determining the effect of glaciers in the valleys of Snowdon—namely, Pont Aber-glaslyn, Capel Cerrig, Llanberris, Nant Francon, and Llyn-y-Cader.

2. 3. Mr. Millward's account of the mud-slide at Malta was intended, it appeared, as a corroboration of Professor J. Forbes' theory of glaciers assimilating their phenomena to the motion of viscous bodies. And he conceives (2) that the "dirt bands" of glaciers are due to the winter freezing, when the ice, less saturated with water, forms more slowly.

The Marquis of Northampton read an account of a meteorite which fell in Bohemia, July, 1847; and of another of the same appearance and chemical composition, which had been dug up at See Loesgen, having penetrated to the depth of fourteen feet.

#### SECTION D.—(Zoology and Botany.)

1. Reeve (Mr. Lovell), notice of an observation made by Mr. Taylor, at Bathochos, Ceylon, on the sounds emitted by mollusca. Communicated by Thomas Lombe Taylor, Esq.
2. Macdonald (Dr., F.R.S.E.), on the erroneous division of the cervical and dorsal vertebra, and the connexion of the first rib with the seventh vertebra in the mammals, and the true normal position of the head of the ribs in mammals.
3. Bradley (Rev. J.), on the boring of sabella.
4. Clarke (Mr. Joshua), note on the parasitic habits of *Rhinanthus Crista Galli*.

5. Portlock (Lieut.-Col.), note on sounds emitted by mollusca.

6. Thomson (Mr. W.), on additions to the fauna of Ireland.

7. Crook (W. H., LL.D.), on a supposed connexion between an insufficient use of salt in food, and the progress of Asiatic cholera.

8. Fowler (Dr.), an attempt to give a physiological explanation how persons, both blind and deaf and dumb from infancy, interpret the communications of others by their touch only.

6. The following species were enumerated as additions to the fauna of Ireland:—In *Birds*,—*Tringa temminckii*. In *Mollusca*,—*Bulica pruinosa*, *Bulla*? *acuminata*, *Orbis foliaceus*, *Stylifer turtoni*, *Rissoa abyssicola* and *R. fulgida*, *Fusus sabini*, *Trichotropis borealis*, *Natica sordida*, *Nucula polii*, *Ascidia virginea* Forb., *Aplidium fallax*, *Botrylloides rubrum*. In *Crustacea*,—*Hippolyte pandaliformis*, *Bell*, and *Idotea acuminata*. In *Annelida*,—*Planaria flexilis* and *Euphrosina foliosa*. In *Zoophyta*,—*Gorgonia verucosa*, *Aleto major*, and *A. dilatans*, *Lepralia simplex*, *Hyndmanni*, *annulata*, *Peachii*, *innomata*, *Ballii*, and *trispinosa*. The genus *euphrosina* is here for the first time placed on record as an inhabitant of the British seas, as is also the genus *ostocoma*, *O. merlangi* having been obtained on different species of fish captured on the Dublin coast. Several of the lepralia had hitherto been taken only in one locality, Sana Island, off the Mull of Cantire, and from a depth of forty fathoms or 240 feet. Those here enumerated were procured from a somewhat less depth at the entrance of the Belfast bay.

8. The facility with which young blind and deaf persons acquire such efficiency in their fingers as to enable them to substitute their touch for loss of both sight and hearing, admits of a physiological explanation from the following considerations:—

1st. That the knowledge of objects and their various relations is not from the specific nerve of each organ of sense, but from the muscular sense residing in the muscles by which they are adjusted.

More contact without pressure gives no knowledge of the forms or bulk of objects, and soon ceases to excite any sensations if the muscles which move the fingers are not in action.

This fact, that all our distinguishing sensations are in the muscular sense of adjusting muscles, seems to afford a satisfactory proof that it is by this objects appear erect, though in the dead eye they are inverted when seen on the retina.

When the head is held unmoved, and the eye alone raised to look up at the ceiling, we have a contractile feeling in the elevator muscles of the eye and forehead, and when we depress our eyes (the head unmoved), we have analogous feelings in the depressing muscles.

Such muscular sensations, like those of the larynx, pass unheeded by those who can both hear and see; but the slightest sensations indicative of the meaning of others are objects of anxious attention to the blind and deaf, more particularly when new to them. This excitement, by novelty of feeling, is well marked by Sir H. Davy, who said he felt an extended sense of touch when he had for some time breathed the nitrous oxide gas, and this probably from the larger proportion of oxygen than in atmospheric air.

For Dr. Fowler thinks it will be found that, simultaneously with retransmission of motor influence to the adjusting muscles of any part, there is also retransmission to its arteries, to insure a supply of blood (the source), from which both sensibility and contractility are sustained.

The above two sections only were at work on Wednesday, when the meeting adjourned to Birmingham, as we have before related.

We cannot, however, conclude the proceedings of the meeting of the British Association at Swansea more appropriately than in the words of Professor Phillips, delivered at the dinner given by the inhabitants, on Thursday, to their distinguished townsman, Mr. Grove, to whom we are indebted for the nitric acid and the gas batteries—the discoverer of the decomposition of water by heat, and the author of the correlation of the physical sciences.

Professor Phillips said: As one of the officers of the Association, he would take that opportunity of stating that every word, every single promise, made by their honoured guest, Mr. Grove, when presenting the invitation, had been fulfilled; every assertion had been fully realized. Every exertion had been made, by all parties concerned, to further the objects of the Association in the most efficient manner. These services had not been rendered in a mere official and formal manner, but with forbearance, a cordiality, and good feeling, which could not be excelled. He had no doubt that, at future meetings of the British Association, the meeting at Swansea would be frequently alluded to as an instance of the power and capabilities of communities, whatever the disadvantages under which they were situated, provided they carried out their objects with unanimity and energy, such as characterised the conduct of the inhabitants of Swansea, in connexion with the visit of the British Association.

### LITERARY AND LEARNED.

BRITISH ARCHAEOLOGICAL ASSOCIATION.  
WORCESTER CONGRESS.

In concluding our account of this meeting, we have to add the following to the interesting papers which the time allotted for their evening reading permitted to be brought forward. We begin with Mr. Wright on the Wood Carvings on the Cathedral seats mentioned in our last.

Mr. Wright remarked, that a very curious series of these misereres, or misericordes, was also preserved in the church of Great Malvern; and continued:—"These sculptures range in date from the thirteenth century to the reformation, and are distinguished by various degrees of excellence. Sometimes they are very rude, but more commonly, like the illuminations in some manuscripts, they possess a considerable share of artistic skill. They are found on the continent as well as in England, and the general character of the subjects is so uniform, that we might almost suppose that the carvers throughout Europe possessed one regular and acknowledged series of working patterns. Yet there is a great variety in the detail, and in the manner of treatment. Writers of vivid imaginations have given them no less a variety of interpretations. Some have conceived them to be satirical attacks aimed by the monks at one another, or at the secular clergy; while others have imagined that these strange and grotesque figures embodied in allegorical form the deepest mysteries of our holy faith. Each of these opinions was equally far from the truth. In all probability neither the designers nor the carvers were monks, although it is evident they were men of a certain degree of education, and well acquainted with the popular literature of the day, the different classes of which are here represented in a pictorial form.

One of the most popular branches on this popular literature was the science of natural history, in the shape it was then taught. The treatises on this subject were designated by the general title of bestiaries (*bestiaria*), or books of beasts. They contained a singular mixture of fable and truth, and the animals with which we are acquainted in our ordinary experience stood side by side with monsters of the most extraordinary kind. The accounts even of the more common and well-known animals trespassed largely on the domain of the imagination, and therefore much more extraordinary were the fables relating to those of a doubtful or of an entirely fabulous character. I may mention, as an example, the unicorn—according to medieval fables, the fiercest and most uncontrollable of beasts. A stratagem, we are told, was necessary to entrap the unicorn. A beautiful virgin, of spotless beauty, was taken to the forest, which this animal frequented. The unicorn, tame only in the presence of a pure virgin, came immediately and laid its head gently and without fear in the maiden's lap. The hunter then approached and struck his prey with a mortal blow, before it had time to awake from its slumber. A more popular character was given to

these stories by the adjunction of moralizations, somewhat resembling those which are found at the end of the fables of *Æsop*. The mysterious power of the maiden over the unicorn, the resurrection of the phoenix, the generous nobleness of the lion, the craftiness of the fox, the maternal tenderness of the pelican, are capable of a multitude of mystical interpretations. The bestiaries, of all ages, are more universally illustrated with pictures than any other book—they seem to have contained the first science to be instilled into the youthful mind. Every one who has been in the habit of examining the sculptured stalls of which we are speaking knows that the stories of the bestiaries are among the most common representations. I have to send you no great distance hence to show you, on the very interesting stalls in the church of Stratford-upon-Avon, the story of the maiden and the unicorn, the latter being made a more cruel sacrifice to the hunter after having fallen a victim to the charms of beauty. The pelican, the elephant, the lion, and the more ignoble monkey, have their places on the stalls of Gloucester. The fabulous objects of the natural history of the middle ages—dragons, chimeras, griffins, and the like, are much more numerous. The syren is seen on the stalls of Great Malvern.

Next after the bestiaries, the most popular books of the middle ages—books which were pictorially illustrated with equal profusion, were the collections of *Æsopian* fables, known under the titles of *Ysopets* and *Avenets*, from the names of the celebrated fabulists *Æsop* and *Avenius*. With these was intimately connected the large romantic or rather satiric cycle of the history of *Renard the Fox*, which enjoyed an extraordinary degree of popularity from the twelfth century to the nineteenth. The fables and the romance of *Renard* are frequently represented on the stalls. The fable of the rats hanging the cat is represented in a carving on the stalls of Great Malvern. The mah and the ass, the fox carrying away the goose, and one or two other similar subjects, are found at Gloucester. The fox preaching is found on one of the side ornaments of a stall carving in Worcester cathedral, and is not of unrequent occurrence elsewhere.

Another class of literature, frequently accompanied with pictorial illustrations in the manuscripts, comprises the calendars or ecclesiastical almanacs, in which the domestic or agricultural employments of each month are pictured at the top or in the margin of the page. Such subjects are extremely frequent in the carved stalls. Three stalls in the cathedral of this city represent men employed in mowing, reaping, and sheaving the corn. Another represents the swineherd feeding his pigs, by beating down the acorns from the trees. This last is a very common subject. Scenes of hunting or hawking are also frequently met with. The stall carver has given a still wider range to his imagination in representing domestic scenes, which are very frequent, and very interesting for the light they throw on the popular manners of our forefathers in far distant times. A very curious example may be cited from the cathedral of Worcester, which represents a domestic winter scene. A man closely wrapped up is seated beside a fire, stirring his pot—his gloves, which are remarkable for being two fingered, as well as the expression of his features, show that he is suffering severely from the temperature. He has taken off his boots, and warms his feet by a rather close approximation to the fire. All the details of the picture are equally curious—even to the side ornaments, one of which represents two fitches of bacon, the winter's provisions, suspended to a hook, while on the other a rather gigantic cat is basking in the warmth of the chimney. On a stall from Minster church, in the Isle of Thanet, an old woman—a witch-like figure, is occupied at her distaff, accompanied by two cats of grotesque appearance. One of the stalls at Great Malvern represents a man at his dinner. Another in the same church exhibits a woman in bed, attended by a physician. Others of this class are more grotesque and playful, representing games and pastimes, and practical jokes, not always restrained within the

bounds of the delicacy of modern times. Monks and nuns sometimes appear in scenes of this description, of which some curious examples are furnished by the stalls in Hereford cathedral.

It is remarkable, and especially characteristic of these carvings, that scriptural or religious subjects are very rare. An example of a saint's legend occurs in the representation of the story of St. George and the Dragon, on a stall at Stratford-upon-Avon, the side ornaments to which are not very congruous grotesques. The stories of the great mediæval romances also find a place in these representations. A foreign example represents the fabulous *Aristote* subdued by the charms of his patron's wife—the subject of a well known poem—the *lai d'Aristote*. A stall at Gloucester, no doubt taken from one of the old *romans de geste*, represents a knight in combat with a giant. Subjects that may be considered as strictly allegorical are also rare; perhaps the figure of a naked man enveloped in a net, with a hare under his arm, and riding on a goat, in the stalls of Worcester Cathedral, may be considered as belonging to this class. A figure of a fool riding on a goat occurs on the stalls at Gloucester. The subjects most commonly supposed to be of this allegorical character are mere grotesques, copied from those fantastic sketches so often found in the margins of manuscripts of the thirteenth, fourteenth, and fifteenth centuries.

My object in thus comparing the carvings on the stalls with the illuminations of manuscripts, and with subjects of mediæval popular literature, is not only to show how easily the subjects peculiar to other stalls are to be accounted for, but to impress on the minds of archaeologists the necessity of extending the field of their inquiries beyond the immediate limits within which the particular subject under consideration appears at first sight to be contained. An extensive study of the literature of the middle ages is necessary to the understanding of its objects of art, and, indeed, of all its monuments, as much as for its history. The sculptured stalls, besides their value for the study of manners and costume, form also a practical illustration of the kind of scientific and literary information possessed by society at large. It was restricted to the bestiaries and the fables, with a less extensive acquaintance with the romances of chivalry.

Mr. Planché, whose thorough acquaintance with costume (as evinced in his history of British of all ages) has been so often called into requisition for royal fêtes and the adornment of the stage, read an essay on ancient female head-dresses, especially the forked or horn-shaped gear, so strangely worn in the fifteenth, and as appeared from ancient writings, perhaps even so early as the fourteenth century. Mr. Planché, however, ingeniously argued that the actual horns of the later period were different from the trussed up hood of the former date.

Mr. Jewitt's paper possesses so much general as well as local interest, that we have taken pains to make a faithful abstract of it as follows:

In No. VII. of our Journal, I gave a short paper on Encaustic Paving Tiles, and I have been induced again to bring the subject before the Association, not on the general ground only, of the great importance and value to the Archaeologist of every species of mediæval decoration, but because our present congress is held in a locality especially connected with the subject. Worcestershire gave as the first proof of these interesting *ficile* decorations being the ancient manufacture of our own country, by the discovery within its boundaries of two kilns, in which had been baked many of the tiles which may yet be seen in the neighbouring churches; and at the present day, the city of Worcester itself possesses, besides its magnificent assemblage of ancient examples, a manufactory, in the establishment of Mr. Fleming St. John, of some of the finest modern imitations in existence.

Ornamented tiles were formerly much used for paving the floors of sacred edifices, and their use was so generally confined to buildings of a devotional character, that, whenever they are found in the re-



main of castellated or domestic mansions, there is good reason for supposing that a religious fabric had at some time existed on the spot, either a private chapel or other holy edifice. The earliest known specimens appear to be of the latter part of the twelfth, or the beginning of the thirteenth centuries, and on them the foliage has the characteristic trefoil of the period. Of this age, one of the most interesting examples was recently discovered at Woodferry, Oxfordshire, some of the tiles exhibiting the badges of Richard, King of the Romans, to whom the manor belonged. In the two following centuries the decorations were of a much more varied and elaborate character. The foliage was more elegantly and gracefully thrown, and exhibited great natural freedom. In the sixteenth century, encaustic tiles appear to have been but occasionally used; but Flanders tiles of this period are sometimes met with—they are of foreign manufacture, and have their patterns depicted in superficial colours.

The devices impressed upon paving tiles consists for the most part of foliage, variously thrown; Heraldic bearings, crosses, sacred symbols, geometrical figures, mounted knights, and grotesque figures of hideous forms, comparable only to fiends and demons. In many cases a single tile contains a complete pattern within itself, but sets of four, nine, sixteen, and other numbers, with a continuous pattern extending over the whole surface, are not uncommon.

Armorial bearings, badges, and cognizances, are perhaps the most useful and valuable decorations to the archaeologist which tile paving presents. Heraldic remains are at all times valuable, and whether they are found depicted in all their gorgeous blazoning, on the stained glass of the windows, or on the monumental effigies of the great departed; or whether sculptured on the bosses, the brackets or font, or impressed in the tiles of the pavement, they should be most carefully noted down and zealously preserved, as a single blazon or the badge of an illustrious house, will frequently lead to the most successful research into the history and foundation of the building upon whose site it has been discovered.

The arms upon pavement tiles frequently exhibit the bearings of the lords of the manor and chase, as well of those of the monarch, and of founders and benefactors to the church, and their aid is therefore peculiarly valuable in tracing the descent of property. At Malvern, the arms of the successive lords of the chase and manor, viz., Clare and De Spencer, Earls of Gloucester, Newburgh, and Beauchamp, Earls of Warwick, and the royal arms, (the lordship having by marriage reverted to the crown,) are represented. At Neath are the arms of Clare, De Spencer, Turberville, Montacute, Granville, and other patrons and benefactors of the abbey, as well as the royal shield. At Hacombe, Devon, amongst other bearings are those of the founder, Hacombe.

Many of the Worcestershire churches are replete with beautiful examples of tile paving, some of them of the finest character, both for design and execution; but very few churches, either in this county or elsewhere, have sufficient portions of pavement remaining to show the mode of their original arrangement. Worcester Cathedral possesses, although hitherto unknown, perhaps one of the finest and most extensive series of original arrangement in existence.

When I arrived in Worcester to attend the present Congress, and examined the magnificent cathedral, I could barely find a score of tiles, with the exception of the justly celebrated monumental cross in the Lady Chapel; but having been told by a gentleman that he believed there were a few in the old singing-school attached to the cathedral, I proceeded thither, and while examining it, I also carefully explored the adjoining rooms and passages, and had the extreme gratification of discovering beneath the accumulations of ages one of the best remaining examples of this species of stilt decoration. Without for a moment entering into the original intention and use of that portion of the cathedral known as the old singing-school, and Cromwell's rooms, I will merely observe that they are approached by a flight of stone steps, and a short passage, leading from the vestries at the west end of

the south aisle of the choir. On emerging from this passage, there is a small closet (if I may be allowed to use the term, for the sake of familiarity) on the left, and a doorway on the right, opening into a hall, called Cromwell's room; from this room is a narrow doorway and winding passage, leading to another closet; a doorway leading by a flight of stone steps into an open passage and small room, over the before named closets, &c., and a third door opening into a small room, from which the singing-school is entered. These are all groined, but at the period of my visit were filled with such a motley assemblage of rubbish that it was next to impossible to examine them; here decayed matting, broken tin candlesticks, and rusty iron enough to stock the shop of a marine store-dealer, were mixed up with dust that would have made a scavenger's fortune. And under this mass of filth and rubbish, after scraping the floors in many places, I had, as I have said, the extreme gratification of discovering one of the most interesting examples of tile-paving which has ever come under my notice. It is much to be deplored that these valuable remains of ancient grandeur should have so long been shut out from examination, and have been totally unknown even to those whose residence the cathedral may be said to be; but, at the same time, it is a pleasing reflection and a solace, to feel that their preservation at the present day, bad as that state of preservation may be, is to be attributed, probably, to the accumulated dust and rubbish which we so heartily condemn.

The whole of the rooms, and passages, and closets I have named, have been paved with decorated tiles of the finest character, and they are for the most part remaining in their original arrangement, to the extent of at least seventy square yards, of which the only portion previously known were those in the one room, the singing school. Many of the patterns are obliterated, and others partly so, but enough remains to show what the former magnificence must have been.

Of the patterns found upon the tiles of the foregoing pavement, it will be only necessary to mention, that besides some of the most exquisite designs of foliage extending over sets of four, nine, and sixteen tiles, birds, sacred emblems, and other devices, there is a fine series of heraldic decorations, containing amongst others the arms of Clare, Le Boteler, Warren, Le Scot, Beauchamp, and the royal arms; these are all single tiles, but there are also some unique examples of shields, composed of four tiles; of these, the well known badge of the King of the Romans, the lion and the spread eagle, here represented within double quatrefoils, and his arms, a lion rampant within a border bezanty, placed lozengewise on the four tiles, the spaces being filled with elegant foliage, will be enough to show the high value and beauty of the whole.

The floors are divided into compartments by borders of shields or birds, (of patterns identical with some discovered in one of the before mentioned kilns,) and these compartments are filled in with tiles laid lozengewise, the patterns upon them being divided from each other by bands of plain black quarries. This gives a good effect and pleasing variety to the pavement, and renders it altogether one which would be of the greatest service for arranging modern floorings.

In conclusion, I would observe, that there are few places in existence which can boast of such a valuable, such an extensive, and so rich an assemblage of this species of stilt decoration as Worcester; but there are few places, I hope, where such remains would have so long remained unknown. It is lamentable to see the deplorable state of that portion of the religious fabric which contains them, but I trust that since a commencement has been made by having one or two of the portions swept for me, that the whole will now be carefully washed for the public.

On Saturday the closing morning meeting took place in the Town Hall, when hearty acknowledgments were voted to the lord lieutenant of the county,

the bishop, dean, and clergy of Worcester, the magistrates, the local committee, and other friends, who had rendered the congress so genial by their hospitality, and so instructive by their arrangements and contributions to the transactions. These were acknowledged, and handsome compliments in return paid to Lord and Lady Albert Conyngham, and the members of the Association, who had devoted their attention to the illustration of local antiquities. We may add to our last week's notice, that among the many unread papers, as promising interest in the forthcoming proceedings of the Association, there were—"A Memoir of Pitchford, in Shropshire," by T. Farmer Dukes, Esq., accompanied with representations of its ancient church and unique and venerable half-timbered manor-house, the latter perhaps one of the finest specimens of that kind of building now remaining in the United Kingdom; "On the manufacture of iron in Britain in the time of the Romans," by M. A. Lower, Esq.; "On the discovery of 400 Roman coins in the Isle of Jersey," by F. C. Lukis, Esq.; "A description and plan of an extensive Roman villa laid open about a year since, in Dursley Park, Gloucestershire," by P. B. Purnell, Esq.; and "On ancient legal tenures in the county of Kent," by R. Bonner, Esq.

#### To the Editor of the Literary Gazette.

SIR,—In your valuable paper of last Saturday, I read a notice on that exquisitely fine and costly Pembroke collection of ancient coins and medals; that also a quarto edition of the present sale catalogue will probably be printed this winter, with notes, index, references, &c., and that it would certainly be a good guide for coin collectors. In accordance with this idea, will you permit me an observation on the bronze coin attributed to Theodoric the Great, king of the Ostro-Goths, Lot 1316 [Pemb., p. 3, l. 32].—Theoboricus: *obv.* IN VICTA ROMA; *rev.* DN. THEODORICVS. REX. in a wreath, extremely rare. Mionnet valued the coin at 20 francs (vol. ii., p. 410). How this distinguished numismatist could value a coin he had never seen, or any other one of bronze of Theodoric, as it would appear by his quoting the Pembroke catalogue of plates, published in 1746, I cannot comprehend. It was the only coin in the collection my humble wish might have aspired to; desirable, even at an extravagant price, had it proved to be what it was stated. I have inspected it with scrupulous care, armed with the very magnifying glass with which the late Sestini himself once pored in delight over many a fine and rare coin—and, therefore, cannot consent that it should be considered any longer as one of Theodoric, because the result of my inspection proves it to be a coin of Theodatus (Theodanatus, Theodahatus), the son of Amalafreda, sister of Theodoric. Theodatus was raised to a share in the kingdom of Amalasuntha, only daughter of Theodoric, after the death of her son Athalaric, A.D. 534. By order of Theodatus, Amalasuntha was imprisoned, and strangled in her bath, A.D. 535, on the small island of Martana, in the lake of Bolsena; and hence coins of Theodatus from A.D. 535 to 537.

On the second line of the inscription on the coin, the sixth letter, *a*, has been altered—and the first letter, *n*, in the third line (in those days used also for *s*), has been entirely effaced. In this way, the reading on the coin was intended to undergo a change—from the still evidently reading *THEODATVS* into Theodoricus.

It may be further remarked that, in these times of calamities and barbarism, the neglect of the peculiarity in the mode of forming the letters, and variation in the orthography, is often observed on coins. Theodoric himself could neither read nor write; but Amalasuntha intended to give to her son, Athalaric, a scientific education. However, the chiefs of the Goths appeared before the queen on that account, acquainting her of their disapproval of the manner she intended to have her son educated; telling her, that docility was an enemy to arms and

to military exercises, because it inspired cowardice and faint-heartedness, and that they needed not a literary king, but a warrior—adding, that the great Theodorie could neither read nor write, nevertheless had made so many nations tremble, and conquered so many countries. Theodorie, when advised by his courtiers to debase the coin, declared that nothing which bore his image should ever lie.

J. G. PRISTER,  
Member of the Numismatic  
Society of London.

#### FINE ARTS.

MISS HELEN FAUCIT.

A LIFE-SIZE medallion of this accomplished actress has been executed in Edinburgh, by Mr. Shakspeare Wood, which has been submitted to our inspection, and of which we can truly say that it is done in the purest and highest style of Art. The countenance is boldly chiselled, and an excellent resemblance. The expression is that which well befits the passionate representative of tragedy. The hair is simply and massively disposed, and the production altogether one that does great honour to the young artist, and shows not only how lofty his conceptions and aims are, but how great his taste and power for carrying them into effect.

#### SKETCHES OF SOCIETY.

THE ARCTIC EXPEDITION.

WHEN we published the account of the sailing of this expedition, and its plan of operations, we stated that Sir James C. Ross expected to send his first dispatches home from Disco Island, should he reach it before the accustomed annual departure of the Danish agent. The annexed intelligence bears out the statement, and induces the hope that we shall speedily receive Sir James' own letters:—

"Aberdeen, Saturday Evening.

"By the fishing cutter Bee, of Hull, arrived at Stromness, on the 30th ult., we have the following intelligence from Davis Straits:—

"The American whaler M'Lellan, of New London, commanded by Captain Jackson, visited Lively, Disco Island, and learned that on the 2nd of July, her Majesty's ships Investigator and Enterprise, under Sir John Ross, had reached the harbour of Lively, and landed dispatches to the care of the Danish governor, to be forwarded by the first vessel to Europe. The expedition immediately proceeded in search of Sir John Franklin. The crews were all well."

STATUE TO THE LATE SIR JAMES SHAW.

THE *Ayr Advertiser* gives an interesting description of the erection, at the Market Cross of Kilmarnock, of a statue of this distinguished London citizen, who attained and well sustained the dignity of Lord Mayor, and died in possession of the utmost esteem of the whole city, as well as of all who knew him, its worthy and able Chamberlain. The ceremony was, on the 4th ult., attended by the Freemason Lodges around, by many civic and other authorities, and by many of the gentry of the district. The foundations were laid, the marble pedestal completed by one o'clock, and the statue raised and rested upon it at a few minutes past four. The Rev. Mr. Graham, of Wallace-town Chapel, Ayr, invoked the Divine blessing on the undertaking, after which Mr. Johnston, of Redburn, pronounced a eulogium on the memory of Sir James Shaw, in which he dwelt in felicitous terms upon the claims to public admiration put forth by the deeds of the philanthropist.

Few men either in public or in private had received or deserved such a tribute as was paid in the proceedings of this day. The splendid work now erected would remain for ages an ornament to Kilmarnock, associating with her benefactor the ability of Fillans.\*

\* Mr. Fillans, we see by another Scottish journal, the *Redbreast*, has just executed a bust of Professor Wilson, which has been inaugurated in the coffee-room of his native Paisley, with honours from his fellow-citizens.

(who by this his first public work had justified his claim to a place beside Flaxman, Chantrey, and others most distinguished in the modern school of sculpture,) and stimulating to virtuous emulation the yet unborn generations of Kilmarnock's sons.

Bailie Donald, addressing the crowd, then said, "We have now got a beautiful monument erected to the memory of one of Kilmarnock's best sons, and I call upon you as you revere the memory of a kind benefactor and a good man, that by your example and your influence you will protect it from injury."

The statue, says our authority, is of what in the technical language of art is called the heroic size, about eight feet, and is elevated on a pedestal of about the same altitude. It is of grey Carrara marble, and represents Sir James in the costume of Lord Mayor, and wearing the collar and badge of that office. As a work of art it is entitled to high consideration. The attitude is easy and graceful, the expression grave and benevolent.

A grand dinner, to which 160 guests sat down, concluded the day; the most memorable features at which were the toast of Mr. Fillans, the successful artist, and the announcement of Sir John Shaw, the present baronet, that he now gave the sum of 100*l.* towards the fund for erecting and maintaining a Fever Hospital in Kilmarnock; and 100*l.* more to be divided between the poor of the parish of Kilmarnock and Riccarton.

THE AMERICANS IN MEXICO.

The late campaigns in Mexico are sure to produce many publications in the United States. Among the foremost is a goodly 8vo, by a Private in the Tennessee Cavalry. By G. C. Furber, and published by Messrs. James, at Cincinnati. The *New York Literary World* gives a review of it; and some extracts illustrative of actions, camps, exploits of troops, &c., which are lively enough, and must be reliable in America; but the two following passages seem to us to be sufficiently characteristic for quotation on this side of the Atlantic. The first rivals the celebrated exploit of Waterton in his Wanderings:

"*Backing an Alligator.*—A singular piece of temerity with regard to an alligator is related in camp. At Sabine river, (now a long distance back,) one of the men of Caswell's company, called in camp 'Skin-horse,' went along the bank for game; did not see any; but then a young alligator popped up his head; 'Skin-horse' fired at it, and the water was stained with blood, but the alligator had disappeared. The report of the gun brought some of his comrades to the spot, and they were told by him what he had killed. They thought he was 'fooling' them; which made him very angry, and swearing that he always told the truth, he stripped off his clothes, and waded in the water to his neck, feeling about with his foot, and stepped on the chap at the bottom; he being only wounded, instantly rose and poked his long nose out of the water, behind 'Skin-horse,' who turned, and with one hand seized him by the fore-foot, and threw the other arm around his neck, and himself on his sealy back. Now came the tug of war. The alligator whirled round and round, making the water foam with his tail, snapping his jaws together, in his endeavours to get at his antagonist; while the latter, having got a hold on shallow bottom, pushed and dragged him towards the shore, while his companions, at first petrified with astonishment, ran to his relief; and they soon got the alligator ashore and dispatched him. He measured in length seven feet. Hugging a live alligator in the water is a ticklish sort of business. 'Skin-horse' is a good-humoured dare-devil chap, cross-eyed, medium height, bony and strong, in for a scrape at any time, and is a great favourite with the whole regiment."

The last is entitled—

"*Catching a Mustang.*—The advance, this day, consisted of twenty-four men, a sergeant, corporal, and bugler, commanded by a lieutenant; and we were accompanied by Major Waterhouse. We were on the march at an early hour. A fog rested over the surface of the prairie; but it soon passed away, and

the day's march was pleasant; but fresh water was scarce, though salt was abundant. Thousands of deer, as before; many herds of wild spotted goats, that we had not seen previously, and many wild horses, that drawing themselves up, surveyed us for a few moments, and then went away with the fleetness of the wind. One, a grey, being visible in the distance, Christian, one of the men, obtained permission to give him a chase; this he did in good style: he got round him unperceived, so that when the horse saw him, in running directly from him, he came towards us. Our boys seeing him a long way off, coming, spurred their horses out, and forming a wide semi-circle, surrounded, confused, and turned him about, and crowded upon him. He fought well, biting with his teeth, and giving kicks with his hind, and blows with his fore-feet; he could do but little, though, against such a set of dare-devils; who, after a desperate struggle on his part, in spite of his snorts and blows, his rapid kicking and biting, jumped at him like so many blood-hounds, and soon got a shyness over his neck, and a turn around his head; and then, tying him to two strong horses, they whipped him and forced him into line. He never, for a moment, discontinued his efforts to regain his liberty. He was a very good-looking, middle-sized stud, but had one of his eyes injured, probably by fighting. The horse was forced along several miles, and then turned loose, and he bounded away to enjoy his freedom again."

#### ORIGINAL,

AND CURIOSITIES OF LITERATURE.

PROVERBS AND POPULAR SAYINGS.

SEPTEMBER. 30th ult.

On Michaelmas-day, the devil puts his foot on the *bums-kites*. Such is the general belief of the common people. In truth, after this day they are seldom to be found good. The blackberry, or more properly brambleberry, is variously known in the north of England by the name of "*bumble-kite*," "*black-kite*," and the still more classical one of "*black-bow-wort*."

Mickle corn, mickle care.

Light your fires in September, put them out in May. Wheat is not to be gathered in the blade, but in the ear.

When all fruit falls, welcome haws.

No fruit in autumn without spring blossoms.

"Great observations, to predict what will fall out, have been made upon oak apples, in September; if cut, they have spiders in them, it betokens blaste and infections; if flies, a dry season; if maggots, a great increase of the fruits of ye earth; if spongy and hollow, without anything in them, scarcity of ye fruits of ye earth ye ensuing year; if early ripe, ye winter will soon advance very sharp; if dry, a dry winter; if very moist, much wet, drifting snow, rain, and cold, and winds ensue; if ye inner part (between both) is fair and clear, then a plentiful summer will ensue, ye weather fair and temperate."—*Shp. Kalend.*

"A hoar-frost on Michaelmas-day, in ye morning, denotes a hard winter. The owl much hooting in ye night, a Michaelmas-tide, denotes a hard frosty winter."—*Ib.*

The Michaelmas daisy among the dead weeds, Blossoms for St. Michael's valorous deeds.

A Michaelmas rot Comes ne'er in the pot.

If a wet September, Fruits will rot in November.\* Keep your boar in the sty Till Hallowtide's night.

Geese now in their prime season are, Which, if well roasted, are good fare.

Alluding to the day of St. Michael. There is a singular Danish superstition touching the appearance of the "*skip-jack*," or merry-thought bone of this favourite bird. They say, that when the bone is white and transparent, there will be much frost; if, on the contrary, it be brownish and opaque, that it will be a mild winter.

The Properties of the Winds in Autumn. Tassier, Lond. 1573.

"The west, as father, all goodness doth bring; The east, a forebearer, no manner of thing; The south, as unkind, draweth sickness too near; The north, as a friend, maketh all again clear."

\* Master Tassier says:— The moon in the wane, gather fruit for to last, But winter fruit gather when Michael is past.



## VARIETIES.

**Trading on Science.**—Perhaps it is impossible altogether to prevent papers and matters from being brought before the sections of the British Association, whose chief if not sole object is to attract attention to articles of trade. It is, however, to be regretted when any such procure an introduction, and still more if they are permitted to prevail in any marked degree. One of the consequences is, that they, being of individual interest, are contrived to be largely quoted in the London newspapers, whilst matters of importance in science are comparatively neglected or passed over in silence, and thus the public at large get to be impressed with a false idea of the nature and doings of the Association. But another sort of extra-working in this way also came under our notice at Swansea. A person presented himself at the residence of one of the principal coal-owners in the neighbourhood, and in his absence was admitted to the drawing-room of his lady, where he announced himself to be a member of the British Association, and produced his card of admission. The lady received him politely, and desired to know the object of his visit, when, to her astonishment, he brought out a box of knick-knacks and jewellery (who knows how precious?), and earnestly solicited her custom for a diamond necklace or an emerald valued at only 177. Much tempted as the lady was by the excessive cheapness of these splendid ornaments, she (fortunately!) declined the purchase, and the chapman departed as he came. He gave his card as from Cheltenham, and the names of (we believe) a respectable firm there; but we guess it was the same gentleman we saw on board the Bristol steamer afterwards endeavouring to sell silver chains to the sailors and stokers at an immeasurably low price! We do not know how such things can be guarded against; but as much care as possible ought to be taken.

**The Fine Arts at Law.**—It is so rare a case that an artist or other individual of intellectual pursuits escapes from oppression and succeeds against parties of more worldly turn in any law proceedings, we have been struck by an instance recorded in the *Times* of Monday. A sculptor at Manchester, Mr. Clarke, brought an action against his landlord for having illegally, in his absence, seized the studio he rented from him, and sold the property it contained, valued at 400*l.*, for 60*l.*, or not quite a sixth part of its worth. In proof of the manner in which the property was sold, it was sworn, we are told, that the bust of John Wesley was put up as that of Voltaire; Sir Charles Bell as Deaf Burke; a cast of Chantrey was described as the "Bald-headed chap," and one of Raffaele as the "Long-haired show-boy." An intelligent jury returned a verdict, that no rent was due, and that the value of the property taken was 275*l.*, which entitles the plaintiff to 550*l.*, being double the amount.

**Manufactures of Worcester.**—In Mr. Gutch's paper, at the Archaeological Congress, on the ancient trades of Worcester, he stated that the Society of Broadcloth Weavers, incorporated in 1511, increased in time to 6000 persons employed; but when Nash wrote his account of the various guilds of the city, the cloth trade had evidently dwindled down to nothing, for he remarks, "of late years the trade of the city had very much decreased; the clothing trade was totally gone; it began to decline soon after the Revolution, owing partly to the roguery of the manufacturers, who stretched their cloth so much that when they came to Blackwell Hall, or sent their cloths to Turkey, they wanted so much of their measure; and partly to the workmen's obstinacy, for they persisted in making a thick, heavy, broad cloth, when the Turks chose rather a thin, spongy cloth, which took a brighter dye." Thus we see that other methods of imposing on customers, besides devil's dust, and fabrications made to sell without regard to quality, so that the cheats may be fobbed off, contrived in former times, as well as now, to the injury of British trade and the foreign sale of British manufactures. The extent of the practice now is all but universal.

**The School of Design.**—Two of the masters have retired—viz., Mr. Horsley, from the class of Colour; and Mr. Dyce, from that of Ornamental Design. The former to be succeeded by Mr. Redgrave, and the latter by Mr. Herbert, each with an assistant master. Mr. Townsend remains the chief, with four masters under him. When the school opens after the recess, on the 2nd of October, premiums to the amount of 150*l.* are to be distributed among the most successful students. Mr. Wornum is announced for a course of lectures on the history and principles of ornamental art, during the next session.

**Mr. Luke Hansard's** account of his dismissal from being printer to the House of Commons, on account of some strong reflections upon a member of that assembly, does not come within our jurisdiction. His plan for saving a large sum annually in the printing expenditure for the House will, it is to be feared, hardly meet with a friendly hearing under the circumstances. His unbounded philanthropy ought, however, to induce great allowances for any warmth into which it may have betrayed him.

**The Edinburgh newspaper** obituary mentions the death of Mr. David Buchanan, for more than twenty years editor of the *Edinburgh Evening Courier*, and an able writer on politics, statistics, and geography in that long-established journal, and other popular publications.

**Mr. Vernon's** munificent gift to the nation, it seems to be generally felt, has not had that sort of acknowledgment from government to which it was entitled. Sir R. Inglis mentioned this in Parliament, and Lord Morpeth assured him that the Committee on Works of Art had expressed their sense of Mr. Vernon's splendid generosity. And this is all!

**The Bronze Statue of Lord Auckland**, by Mr. Weekes, has been embarked for its destination—the Esplanade at Calcutta—on board the *Marborough*.

## LITERARY NOVELTIES.

## LIST OF NEW BOOKS.

- Angels' Work; or the Choristers of St. Mark, &c., 18mo, 2s.  
 Arnold's Elementary Greek Grammar, 12mo, cloth, 5s.  
 Beauchamp; or the Error, by G. P. R. James, 3 vols., £1 11s. 6d.  
 Birkett's (Rev. G. W.) Trial of Creation, and other Poems, 3s. 6d.  
 Bruce's (Rev. H.) Hand-book of English History, 12mo, cloth, 2s. 6d.  
 Bund's Aids to a Holy Life, 18mo, 1s.  
 Catlow's (M. E.) Popular British Entomology, 16mo, cloth, 7s.; coloured, 10s. 6d.  
 Child's Thoughts, in verse, 18mo, cloth, 3s. 6d.  
 Davidson's (S. L. D.) Introduction to the New Testament, vol. 1, 8vo, cloth, 13s. 6d.  
 Descriptive Notices of some of the Ancient Churches of Scotland, 8vo, sewed, 7s. 6d.  
 Edwards' (G. R.) Delectus, fifth edition, 12mo, cloth, 3s. 6d.  
 Eton Latin Accidence, eleventh edition, 12mo, cloth, 1s.  
 Ellmer Castle, nineteenth edition, 12mo, cloth, 3s. 6d.  
 Essay on Ecclesiastical History, by the Duke of Argyll, 8vo, cloth, 9s.  
 Evening Bell, by Caroline Reinhold, translated from German, post 8vo, 6s.  
 Fichte's (J. G.) Popular Works, with memoir of author, vol. 1, 12s.  
 Vocation, second edition, 4s. 6d.  
 First English Reader, Edited by Abbott, 12mo, cloth, 2s. 6d.  
 Exercises in Light and Shade, 18mo, cloth, 3s. 6d.  
 Hack's Geological Tales and Sketches, new edition, 12mo, cloth, 6s.  
 Heart's Ease and Dew Drops, square, boards, 2s.  
 History of Louis Mortimer, 18mo, cloth, 2s. 6d.  
 Jagoe's Practice of County Courts, fourth edition, royal 12mo, 20s.  
 Lectures to Young Men, second edition, 12mo, cloth, 3s. 6d.  
 Sallust, 12mo, cloth, (Chambers' Educational Course,) 2s. 6d.  
 Taylor's Short Hand, new edition, by J. H. Cook, 12mo, cloth, 3s.; roan, 3s. 6d.

## DENT'S TABLE FOR THE EQUATION OF TIME.

[This table shows the time which a clock or watch should indicate when the sun is on the meridian.]

1848.	h. m. s.	1848.	h. m. s.
Sept. 9 . . .	11 57 7.6	Sept. 13 . . .	11 55 44.0
10 . . .	— 56 46.9	14 . . .	— 55 22.9
11 . . .	— 56 26.0	15 . . .	— 55 1.7
12 . . .	— 56 6.1		

## TO CORRESPONDENTS.

"A. E. P." cannot appear. It often happens that strong individual feelings and circumstances are, yet, not fit themes for general poetry.

## ADVERTISEMENTS.

## UNIVERSITY OF LONDON.

**THE EXAMINATION for the DEGREE of BACHELOR OF ARTS**, for the present Year, is appointed to commence on MONDAY, the 23rd of OCTOBER.

Candidates must be sent to the Registrar fourteen days previously. By order of the Senate, R. W. ROTHMAN, Registrar.

Somerset House, Sept. 4, 1848.

**SOCIETY FOR ENCOURAGEMENT of ARTS and MANUFACTURES**, JOHN-STREET, ADELPHI.—The NEW PRIZE LIST has just been issued, and may be had on application to the Secretary. In that List are comprised the following subjects:—

1. A Gold Medal, offered by H.R.H. the Prince Albert, for the best account of any New and Improved Machinery or Processes employed in the Cultivation or Preparation of Sugar in the British Colonies, designed to economize labour and increase production.
2. A Gold Medal, offered by H.R.H. the Prince Albert, for the best Cement for Uniting Glass.
3. Prize of 50 Guineas, offered by T. Twining, jun., Esq., for the best Series of Experimental Researches on, and Specimens of, the Application of slag or other allied Products to New Purposes.
4. A Gold Medal, or £25, for the best Working Model of an original Design for a Silver Goblet, suitable to be awarded as a prize, value £100, in conformity with the bequest of the late Dr. George Swiner.
5. A Gold Medal for the most elegant Design for a Vase in red Earthenware, to be ornamented with designs taken from English history or literature, in the manner of Etruscan vases.
6. Gold and Silver Medals for the best and second best Specimens of Chasing of the Human Figure in Silver.
7. A Gold Medal, or 30 Guineas, for the best Design for a Labourer's Cottage in the country.
8. A Gold Medal for the best Essay on the Construction of a Farmstead, and the complete requirements of an agricultural establishment for 300 acres.
9. A Gold Medal for the discovery of a new Substance capable of receiving the Calotype Image.
10. The Aetion Gold Medalion, value £30, for the Plan of a Roof, composed of wood and iron.

Full explanations of terms, and other information, will be found in the printed prize list.

The Annual Exhibition of Select Specimens of British Manufacture for 1849 will take place in March. Manufacturers are requested to have their specimens forwarded to the Society's house on or before the first Monday or Tuesday in February.

## FOR SCIENTIFIC AND PROVINCIAL MUSEUMS.

**FOURTEEN MODELS**, carefully coloured from the originals, of Teeth and Bones of the IGUANODON, HYLEXOSAURUS, and GATIAL, discovered by Dr. Mantell in the strata of Tilgate Forest, and now preserved in the British Museum (Natural History, North Gallery, Room III., Case—Reptiles.) Price of the whole set, £12s. 6d.

The above are described in "Wonders of Geology," by Dr. Mantell. Cost of Head of Crocodilus Spenceri, from Isle of Sheppey; Figure in Bridgewater Treatise by Dr. Buckland, Plate 30. Price 5s.

Copies of Mr. Hawkins's "Book of the Great Sea Dragons," containing thirty beautiful Lithographic Plates, measuring twenty-one inches and a half long by fourteen and a half wide, of the remains of the Ichthyosaurus and Plesiosaurus, from the Lias of Somerset, &c. Price 21s.; published at 40s. The Plates will be found useful to Schoolmasters and others teaching Geology. An excellent description of the peculiar characters of the fossils will be found in the Bridgewater Treatise by Dr. Buckland.

A fine Cast in Plaster, carefully coloured, of that interesting Fossil Saurian, the Plesiosaurus Dolichodeirus. (P. Hawkins, Owen.)

The original Specimen of the unique Skeleton of this species of Plesiosaurus, now in the British Museum, was obtained from the Lias, near Glastonbury, and is described and figured in the Bridgewater Treatise by Dr. Buckland (vol. ii. pl. 17).

The Cast, mounted on a strong Wood Frame, measuring 6 ft. 3 in. in length, 3 ft. 6 in. in width, is well adapted for Scientific and Provincial Museums, as exhibiting the remarkable characters and peculiarity of structure of this singular Reptile. Price of the Cast, 4*l.* Sopwith's Geological Models, Maps, &c., can be had of Mr. Tennant, 149, Strand, London.

## CELEBRATED THROUGHOUT THE GLOBE.

## HOLLOWAY'S OINTMENT.

## Cure of Fistulous Sores and Pleurisy.

Extract of a Letter from Mr. Robert Calvert, Chemist, Stokely, dated September 3rd, 1847.

## TO PROFESSOR HOLLOWAY.

SIR,—Mr. Thompson, National Schoolmaster of this Town, desires me to send you the particulars of his son, who had been laid for three years and a half, and has received the greatest benefit by the use of your Pills and Ointment. He is of a serious constitution; a pleurisy had left a large collection of matter in the chest; this eventually formed a passage through the walls of the chest, and ended in three fistulous sores which discharged large quantities of pus, when he was induced to try your Pills and Ointment. At this date he was apparently in a dying condition; the stomach rejected every thing it took. Your Pills and Ointment had the effect of completely curing both the cough and stomach affection; his strength and flesh are also restored, his appetite keen, and digestion good. There is every prospect that a little further continuance of your medicines will finish the cure.

(Signed) ROBERT CALVERT.

Sold by the Proprietor, 254, Strand, (near Temple Bar), London; and by all respectable Vendors of Patent Medicines throughout the Civilized World, in Pots and Boxes, at 1*l.* 10*s.*, 2*s.*, 6*d.*, 4*s.*, 6*d.*, 3*s.*, 2*s.*, and 2*s.* each. There is a very considerable saving in taking the larger sizes.

N.B.—Directions for the guidance of patients are affixed to each Pot and Box.

